

# How Probiotics Can Support Honeybee Gut Health and Immune System.

*By Martin James*

I have always been fascinated by honeybees. I started keeping my own hives at the age of 9. I've been keeping bees professionally now for over 15 years. Through all this time, my fascination with the bee and the hive has never gone away. I may not know all the bees by name, but I at least know their families!

As a professional beekeeper, I have been subject to the same build and collapse cycles that others have dealt with. Early on in my professional endeavors, I recruited my sister Karla to help me. She has spent a lot of time with nutrition and natural healing and we have applied many of those principles to our beehives as well. Still, even with careful tending and attention to diet and nutrition, we had the cyclic collapses of our hive populations. It was very frustrating and financially challenging to keep a business going when our workforce kept dying every few years.



*Martin James and his sister, Karla Bingham, examine hives at the Slide Ridge Honey operation in Utah.*

I had investigated and heard about many different claims to solve the colony collapse problem, but the cycles didn't change. The problem was still there, and it was getting worse. So, when I was approached by Ken Hamilton of Bio Minerals Technologies, who said he could cure CCD, I was very skeptical. At first, I dismissed the claim, but I eventually agreed to meet with him and at least hear what he had to say.

That meeting was the beginning of a journey that has changed the lives of my bees — and myself! His solution was relatively simple. He identified the cause of CCD as an accumulation of environmental toxins that caused an eventual deterioration of the beneficial gut microorganisms of the honeybees. In their roles as pollinators, bees are exposed to an extremely toxic cocktail of agricultural chemicals such as herbicides, pesticides, fungicides, etc. These toxins were killing off the beneficial microorganisms in the bee's gut, which weakened the immune system and the bee.

In addition to the environmental toxins, there is also a shortage in trace minerals in almost all agricultural operations today. People have been farming for generations, but they seldom, if ever, replenish the trace elements in their soils. The lack of trace elements also contributes to the reduction in immune functions, further weakening the bees.

The solution was to provide a high-quality probiotic and broad-spectrum trace element supplement to be mixed into the bee syrup and patty. As we discussed his analysis and proposed solution, it made logical sense, but the real test was in the application. He hadn't tried it before, and my bees were his guinea pigs.

My first step was to just see how the bees would react to it (i.e. would it kill them?). I took some of the liquid probiotics, opened up a couple hives, sprayed some on the bees and the top bars, and stepped back to see what would happen. As it turned out, the bees loved it! They lapped it up and wanted more.

The result of the probiotic was also audible. When I went into the bee yard and opened the hive, I could hear an angry, high-pitched buzz from all the bees swarming around me and the hives I had opened. They were bouncing off my bee suit and face shield and they were audibly and visibly upset. As soon as I sprayed the probiotic, the result was almost instant. As the bees lapped it up, the sound changed. It went from the high-pitched, angry whine to a lower-pitched, contented hum. The bees were less aggressive, and they all settled down and simply went back to work!



*Slide Ridge Honey has found success in applying probiotics to its hives.*

My next test was to mix it into my syrup and patty and feed a group of test hives through the winter and see how they fared. That winter was a good year for all our hives, but my test group came through very strong and without any problems. As we started preparing all our hives for the almond pollination, we incorporated the probiotics and minerals into our regular feeding regimen.

That was over four years ago. Since that time, we have not had a single collapse event. We may lose a colony occasionally, but that is just part of the normal process. Our general winter loss rates are between 5-8 percent. Our almond orchard grading is consistently at the upper limit. Our hives always grade at the maximum strength and the vigor and health of the bees is noticed by the orchard managers.

One of the interesting results of these supplements is in the general behavior of the bees themselves. They are calmer and much easier to work with. They are less excitable when we move them around or need to get into the hive. In fact, we don't use smoke anymore when we work with our bees. Instead, we just spray some liquid probiotic onto the open hive and the bees settle right down. The difference is especially noticeable when we help someone else move their hives. Their bees are a lot meaner than ours!

Another example of the effectiveness of the supplements happened our first spring after we incorporated the probiotics and minerals into the general feeding plan. We brought our bees back from the almond pollination and put them into our spring holding yards where we can work on

splits and preparing the hives for honey placement. We had one large holding yard where we had just finished the splits for that group. There were around 1000 hives that were almost ready to go up to their summer locations.

We were at that yard on a windy afternoon, finishing up some of our hive work, when we heard a terrible sound. It was a roadside sprayer! Some contractor was out spraying the sides of the highway in a 30-mph wind, against all regulations and even common sense! Our holding yard was half-a-mile or so away from the highway, but the wind carried the poisons right to us. We watched the bees in the air just drop dead around the hives.

We chased down the sprayer and told him very firmly to stop immediately, but the damage was done. Our expectation was for a total loss of those 1000 hives. We had seen similar events before, so we knew what to expect.



Slide Ridge Honey operates out of Utah.

We kept feeding the bees with the supplements, hoping that some of them would survive, but we didn't have much hope. We eventually moved them out to their summer ranges and just hoped for the best.

When we checked on those hives later that summer, not only were they not dead — they were thriving! The bees were healthy, the hives were strong, and they were producing large amounts of honey. We actually harvested a record amount of honey that year, including from the “damaged” hives!

By all reason, those hives should have failed. Instead, they prospered. Our only difference between previous occasions is the introduction of probiotics and trace elements into their diets. The stronger populations of beneficial microbes in their guts created a stronger immune response that enabled those bees that were not directly hit with the spray to recover from such a concentrated toxin attack.

The stronger immune systems manifest themselves in other ways as well. We no longer use any antibiotics with our bees. We used to treat our hives with antibiotics twice each year to control diseases such as foul brood. Since we started the probiotics and minerals, we eliminated the antibiotic treatments. The bees just don't need it. We haven't seen any foul brood in our hives in four years, without antibiotics!

The benefits go beyond just the health of the bee and the hive. Our queens breed easier and lay better than they ever have before. Our hives are stronger for spring splits. We consistently get three and sometimes four nucs from a single hive! The stronger reproduction gives us yet another income stream as we sell nucs and packages every spring, to individuals, and to regional retail locations. No longer do we spend the spring recovering from the previous year's losses. We lose very few, so we can grow as we want to and still sell off our excess.

The difference is also notable in the quality of our honey. We have always had good honey, but when we introduced the probiotics and minerals, the quality was even higher! We sent some honey samples to a large national food distributor, so they could evaluate it and decide if they wanted to buy it. When they got the results back from their lab they called us and told us our honey was their new international standard. It was the purest honey they had ever tested (it tasted pretty good too)!

We have been sharing our success with many of the small beekeepers in our area. Helping and sharing have always been an important part of our business model. We have always been a resource for those who keep a few hives and need some help, or who want to learn more. Many of these small beekeepers actually keep their hives with ours during the winter and they come with us into pollination. We try to teach all of them our methods so that their bees can be healthy too.

Those smaller “partner” beekeepers that follow our nutrition and health maintenance programs have results very similar to ours. However, some of our small beekeepers run their own nutrition and maintenance programs. Those beekeepers are still subject to the cyclical crashes, even while our hives continue at full strength. We have seen that illustrated very clearly over several winters, with some of these less careful beekeepers losing up to 100% of their bees. Yet our loss rates remain in the single digits.

At this point, the probiotics and trace elements are a standard part of our feeding plan. The bees need it and they are a lot happier when we provide it. The cost is minimal, and the returns are significant, because we just don't lose our hives anymore!

Our sharing has expanded not only regionally, but nationally and even internationally. The requests for our nutritional products grew to the point where we started packaging them and selling them to distributors and even retail chains that serviced beekeepers and their needs. Our objective is to get as many people using these principles as possible because the bees need it!

Through the years, beginning with a 9-year-old boy, there have been many beekeepers who were willing to share their hard-earned knowledge with me. I would repay them poorly if I didn't share the lessons that I have learned and the many experiences I have been given. To that end, we also donate 5% of all our bee nutrition profits to Project APIS, a non-profit organization directed by both beekeepers and scientists, to fund and direct research designed to enhance the health and vitality of honeybee colonies.

If you want to know more about what we do and how we do it, we welcome your conversations. I love to talk about bees, especially with other beekeepers.

*Martin James owns and operates [Slide Ridge Honey](#) in Mendon, Utah.*