

# BeeTechnology: Preventive treatment against American foulbrood

## DESCRIPTION

Our product seeks to be the first additive or food supplement for honey bees with preventive properties against American foulbrood. This protein additive is capable of preventing the appearance and spread of the *P. larvae* bacteria, which causes the American foulbrood disease, by disabling the germination and development of the pathogen.

Our product is being designed so that the beekeeper can use it without specialized supervision and that it does not contaminate honey, as is the case with the use of antibiotics in the USA and Canada, which require to be prescribed and administered only by a Veterinary Doctor, with the before mentioned, with its high residuality, the commercialization of products within the country is prohibited, as well as export. This generates a problem in itself, since there is no product to preventively administer chemicals that does not leave residues and interferes with the organic quality of honey. For this reason, the use of antibiotics in Chile is prohibited, as well as in all world honey producers, with the exception of the United States and Canada.

On the other hand, our protein additive, being produced by environmental microorganisms, does not harm the bee or its beneficial microbiota and avoids being considered as waste according to the regulations of various countries due to its consistency of protein base.

## VENTAJAS

1. Organic preventive treatment without chemical residuality.
2. It manages to eliminate both the active form and the spore of American foulbrood.
3. Designed to be easy to use and apply to the hive.
4. It manages to reduce up to 93% of the losses of hives by American foulbrood.



▲ Scientific start-up experts in genetics that develops a nutritional supplement for bees providing better nutrition and quality of life to hives.

## MARKET

The market to which this product is focused is the beekeeping industry. In Chile this industry presents an annual growth of 6.2%, with US \$ 25 M in honey exports. On the other hand, in the United States, the value of the beekeeping industry is over US \$ 336 M, without considering the impact it has on other industries, such as the agricultural industry, whose crops depend on and require the exclusive pollination of bees. . These industries generate revenues of over US \$ 22 billion, as observed by the USDA during 2018. In Chile the presence of American foulbrood is quite controlled by the SAG despite the absence of a product capable of preventing the development of the disease, thanks to the early detection, incineration of all work material and entering a period of quarantine. But in other countries such as the USA, this disease affects an average of 4.5% of hives annually, generating estimated losses of over US \$ 1 billion, combining the beekeeping, agricultural and pharmaceutical industries. This is why we, as a company, seek to generate a product which is capable of preventing the appearance and spread of this disease and, thus, avoid the large economic losses attributed to the American foulbrood disease, both to the small beekeeper and to the large agricultural producer.

## INTELLECTUAL PROPERTY

Currently, the protection of technology is being evaluated by applying for an invention patent, in the countries with the highest beekeeping production worldwide and with the highest rate of American foulbrood disease, among which the following stand out: Argentina, Canada, United States, New Zealand, China among others.

## APPLICATIONS

Currently the technology under development seeks to be incorporated into a nutritional formulation, which the beekeeper can use on his hives, so that it is at all times protected against possible infection. On the other hand, there may be a concentrated format, this way the beekeeper can use his own food or syrup recipe.

## INVENTOR



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▶ If a hive contracts American foulbrood, international law requires reporting and burning of all the beekeepers work, as it is defined as a quarantine disease and a global threat.

## STATE OF DEVELOPMENT OF TECHNOLOGY

To date, we have developed significant advances, including analyzes of the preventive capacity of the protein additive against P. larvae, safety analysis in bees and mice under the OECD standard and, in addition, we established an optimization of the culture medium of the bacterial consortium producing the additive protein, in order to maximize production and reduce manufacturing costs. This allowed us a significant reduction in the production costs of the additive, making its production feasible on a large scale.

## FOR MORE INFORMATION



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