

# Honey Hive

Damiano Cacchiarelli - 119973 - PAS Exam

## - Abstract

Bees play a fundamental role in the ecosystem, contributing to the pollination of many plants and honey production.

The aim of this project is to create a simulation of a beehive using Sibilla and study how certain factors influence bee behaviour and honey production.

The model takes into account several factors that can impact honey production. These include:

1. **Weather conditions:** The model considers factors such as temperature, humidity, and rainfall, which can affect the availability of nectar and pollen, as well as the health and productivity of the bees.
2. **Nectar and pollen availability:** The model considers the availability of nectar and pollen, which are the primary resources that bees use to produce honey.
3. **Pesticides and chemicals:** The model considers the impact of pesticides and chemicals on the health and productivity of the bees, as well as the quality and quantity of the honey they produce.
4. **Bee population dynamics:** The model considers the dynamics of the bee population over time, including factors such as bee birth and mortality rates, and their impact on the health and productivity of the bees.

# References

[Summer weather conditions influence winter survival of honey bees \(\*Apis mellifera\*\) in the northeastern United States | Scientific Reports \(nature.com\)](#)

[Report annuali produzione e mercato – Informamiele](#)

[Response of honeybee colony size to flower strips in agricultural landscapes depends on areal proportion, spatial distribution and plant composition - ScienceDirect](#)

[WE - An approach to the modeling of honey bee colonies \(copernicus.org\)](#)

[Sensitivity analyses for simulating pesticide impacts on honey bee colonies - ScienceDirect](#)