

The BeeGuards consortium comprises 27 partners from 15 countries, including universities, research institutes, IT companies, beekeeping companies, associations and advisors.

THE COORDINATION IS UNDER
THE RESPONSIBILITY OF:



Through a multi actor approach and an open and inclusive design of the work program, the BeeGuards team embeds a wide and diversified range of stakeholders.

As a community during this 4 year project, we will perform an international field study evaluating and validating an innovative threshold-based management concept and an accelerated breeding strategy for resilience.

Complementary investigations will elucidate the ways in which management and climate act on honey bees and other pollinators.

**Submit your interest in participating
as a Citizen Scientist!**

DO YOU WANT
TO JOIN US?



Our open and participatory actions include the development of a **long term self-sustaining community tool**: a WikiBEEdia website where we will share and promote innovative concepts and BeeGuards results, including a Quest for sustainable beekeeping practices.

The BeeGuards' ultimate goal is to highlight the change of perspective that is needed to **achieve resilient beekeeping**, by providing a truly holistic view of the mechanisms determining colony resilience.

BeeGuards will show how to **protect pollinator biodiversity**, to ensure the future provision of pollination services, preparing the European apicultural sector to meet the climate challenge.



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BeeGuards

for resilient beekeeping



BeeGuards aims to strengthen the resilience of the European beekeeping sector and beyond by providing sustainable management practices, novel breeding strategies and by developing analytic and digital forecasting tools to enable the sector to adapt to a changing environment.

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WP1 • MANAGEMENT FOR RESILIENCE



- investigate effects of an innovative varroa management concept
- run an international field experiment (11 countries, 450 colonies) also to provide data, samples and matrices for analysis by other WPs
- transfer innovations from institution-led apiaries to continue investigation in beekeeper-led apiaries through a Citizen Science approach

WP2 • BREEDING FOR RESILIENCE



- utilize and evaluate natural selection elements into honey bee breeding programs for varroa resistance and resilience toward environmental stressors
- validate efficiency and functionality of an accelerated breeding cycle
- establish a network of cryobanks (honey bee semen) and a standard procedure for cryopreservation of embryos

WP3 • MONITORING & MODELLING



- deploy ~ 250 digital hives across the international field study for real-time data collection
- integrate data and make them available to researchers
- implement models to serve as a decision support systems

WP4 • HOLOBIONT



- provide a handbook for standard methods in bee hologenomic research
- integrate different “-omic” methods in field and laboratory experiments
- determine the specific genetic and microbial combinations that foster honey bee resilience under the innovative management concept

WP5 • IMMUNITY & PHYSIOLOGY



- understand the effects of landscape nutritional value, land use and colony management on honey bee health
- investigate bee physiology and immune response from the social to the molecular level
- integrate transcriptomic assays with an Artificial Intelligence approach

WP6 • PARASITES & PATHOGENS



- investigate the impact of climate change on foraging activity
- modelling future pathogens and pests' dispersal
- compile and suggest beekeeping practices to mitigate the impact of emerging pests and pathogens

WP7 • ENVIRONMENTAL ASSESSMENT



- perform Life Cycle Assessment on beekeeping management practices
- investigate the environmental impact of the proposed innovative management concept
- suggestions to reduce beekeeping carbon footprint

WP8 • HONEY BEES & WILD POLLINATORS



- provide methodological guidelines to assess potential competition among pollinators
- identify management solutions to mitigate the impact of beekeeping on wild pollinators at the agricultural landscape scale
- leverage on Citizen Science to improve knowledge and awareness on the pivotal ecological role of unmanaged pollinators

WP9 • DISSEMINATION & EXTENSION



- communicate the project's aims and workplan and the long-term dissemination of its results to a wide range of audiences
- engage with stakeholders to favour a co-creation approach throughout the project
- plan and implement interaction with society via a “Quest” and a “WikiBEEdia”

WP10 • PROJECT MANAGEMENT



- ensure efficient and successful realisation of the project
- monitor the project's scientific and technical progress and enable an optimal cross-fertilisation across all work packages
- maintain formal and administrative contacts with the funding body (European Commission)



Join our team
as a Citizen Scientist!