B-GOOD Beekeepers

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BACKGROUND

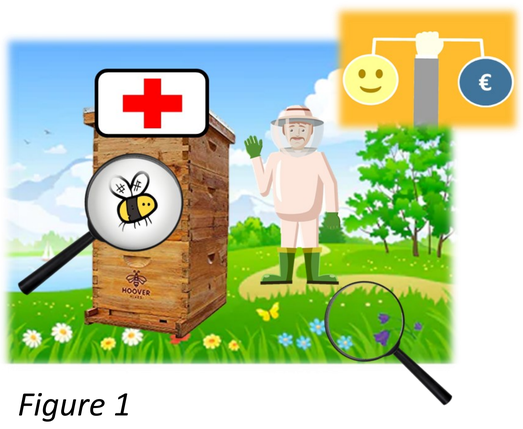


Figure 1

B-GOOD stands for Giving Beekeeping Guidance by cOmputatiOnal-assisted Decision making. B-GOOD works towards healthy and sustainable beekeeping within the EU. We focus on finding a Health Status Index (HSI, inspired by EFSA's Healthy-B toolbox 2016), which is a categorization of the health of a bee colony based on various indicators from within and around beehives, and socioeconomic conditions (see fig. 1). Automated data collection using sensors is preferred as it helps create an almost continuous stream of data and consequently changes in the colony will be picked up in an early stage. If the HSI changes alarmingly, an alert will be sent to the beekeeper. Such alerts will guide beekeepers in their beekeeping management. Combining the pursuit of a healthy bee colony with safeguarding the economic viability of the apicultural business and understanding the ecological balance will make beekeeping more sustainable.

B-GOOD aims to provide guidance for beekeepers and help them make better and more informed decisions.

3-Tiered approach

Data are collected according to a 3-tiered approach, gradually expanding the field of activity (see fig. 2).
Tier 1 takes place at 8 partner bee institutions who have the expertise and infrastructure to keep bees. At this level, the researchers themselves experience any obstacles that may arise, making adjustments possible. Tier 1 runs for 3 B-GOOD field years (2020, 2021, 2022) and involves 89 colonies.
In **Tier 2**, 5 B-GOOD partners will each guide in their own country 8 **beekeepers** who monitor 3 honeybee colonies (40 beekeepers and 120 colonies in total). Tier 2 runs for 2 B-GOOD field years (2021-2022).
Tier 3 takes place at the pan-European level and is coordinated from NL by WR during de field year 2022. A total of 58 **beekeepers** were selected in 12 EU countries, to participate with 3 colonies each (174 colonies in total).

Data collection in all Tiers include:
1) automated data flow through the BEEP-base sensor system
2) beekeeper observations at the hive, logged through the BEEP-app and
3) analyses for diseases and worker bees' genotypes

Partners BEEP, SCIEN and FLI, support all people collecting data, in all tiers.

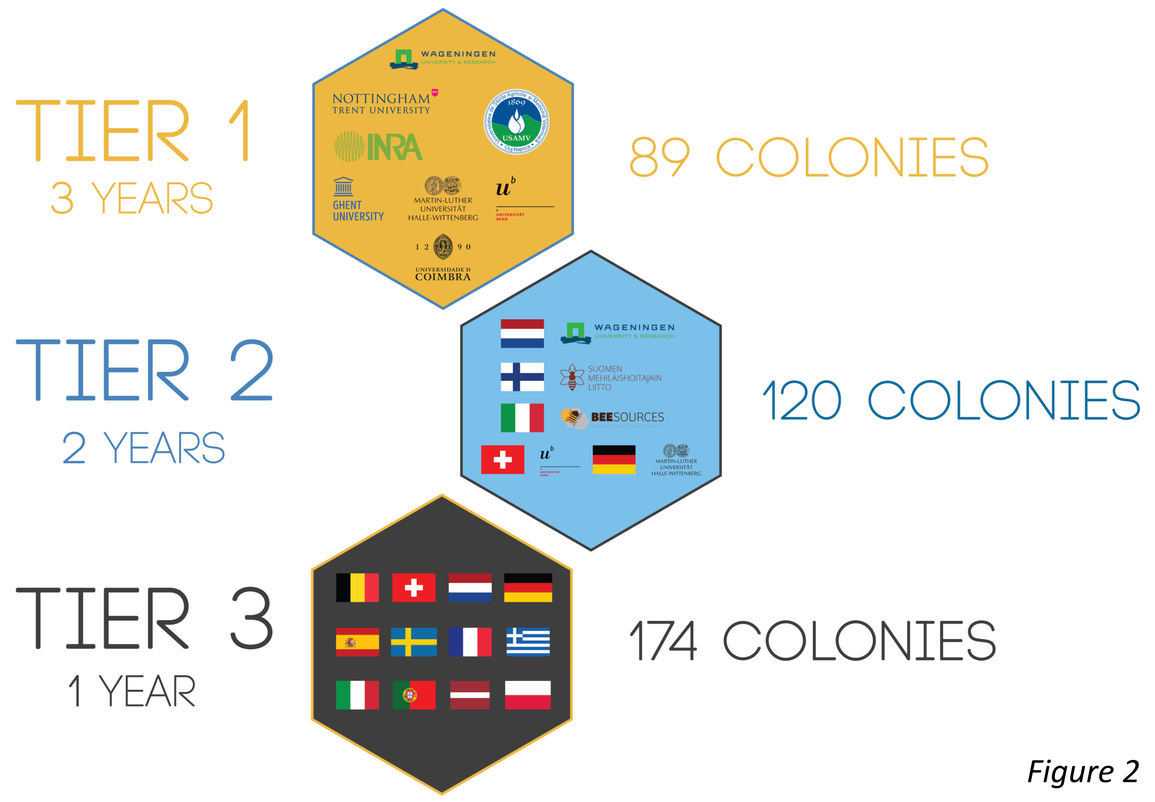
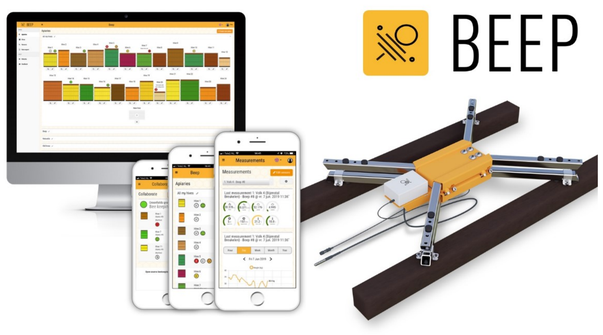


Figure 2

B-GOOD for beekeepers

- Monitor health of 3 colonies for 1 or 2 years, guided by B-GOOD team
- Analysis of diseases (e.g. varroa, deformed wing virus, chronic or acute bee paralysis virus) and genetics (e.g. ecotype) on collected bees
- 3 BEEP bases to use during the research period and to keep afterwards
- Access to BEEP app, helpdesk function, and data export feature
- Access to collected sensor data
- First access to knowledge about new innovative tools developed within the B-GOOD project
- Opportunity to interact with scientists and beekeepers across the EU continent



Beekeepers for B-GOOD

- Help test new systems and give valuable early stage feedback
- Collect valuable data that allow us to develop the HSI, algorithms, and determine thresholds for alerts
- Give us insight in their ways of beekeeping, business models, views on honey bee health and motivation for beekeeping
- Allow us to disseminate our newly acquired knowledge in a highly motivated network
- Increase our interaction with people across the EU and make the project more fun!
- **Thank you beekeepers, for all enthusiastic participation!**

B-GOOD colonies of a Tier 2 beekeeper, Netherlands

Acknowledgements and References

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https://b-good-project.eu/

Reference: EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare). **Scientific opinion on assessing the health status of managed honeybee colonies (HEALTHY-B): a toolbox to facilitate harmonised data collection**. EFSA J. 2016; 14(10): 4578, 241 pp. doi:10.2903/j.efsa.2016.4578.

All B-GOOD Partners