# BEEP

# The BEEP platform facilitates honeybee research

www.BEEP.nl
BeepFoundation
BeepBeeApp
BeepBeeMonitoring

BEEP is a research platform with digital tools assisting honeybee research. This online system offers an overview of all colonies, inspections and apiaries at the touch of a button. Bee researchers can invite beekeepers to their (citizen science) research project for high quality data collection.

The BEEP platform is extended and used in the European project B-GOOD by researchers and beekeepers in 15 counties, collecting over 12,5 million datapoints. We present how this open source honeybee research platform is used in three steps:

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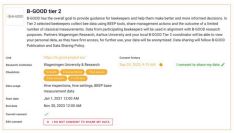
October 2023

## 1. CONFIGURE HARD- & SOFTWARE



### Research set-up

A new research is set-up in which checklists and protocols are included for participating researchers and beekeepers. They can consent to share data for research and add personal checklists based on the standardised data categories too.

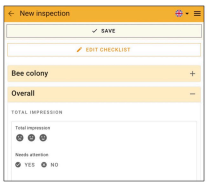
### BEEP base

The BEEP base measures weight of the complete hive and temperature and sound in the hive. Customisation is possible. Also, you can add measurements from a weather station or your own system to the BEEP platform via the API (Application Programming Interface).

### BEEP app

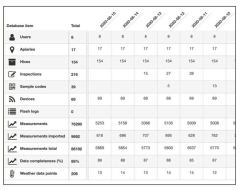
Beekeepers' observations are digitally registered using our record keeping app, complemented by automatic observations using sensors. It works on any computer including mobile phones.

## 2. COLLECT DATA




### Inspection data

Using research checklists the beekeeper enters actions and observations for research purposes. The standardized data categories ensure high quality data collection. Both on- and offline data entry is possible.



### Data collection monitor

Researchers check the completeness of data collection according to data collection intructions and protocols. And can intervene timely to ensure data completeness

- Nederlands
- Čeština
- Deutsch
- English
- Français
- Ελληνικά
- Italiano
- Norsk bokmål
- Português
- Română
- Spanish
- Suomi
- Svenska

**PLATFORM USAGE IN NUMBERS:**

**2.761** ACTIVE USERS

**7** RESEARCH PROJECTS

**13** APP TRANSLATIONS

**518** DATA CATEGORIES

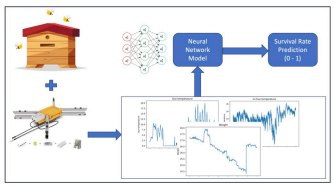
**40** DATA ENTRY TYPES

**2.100** CONNECTED DEVICES

## 3. ANALYSE & USE

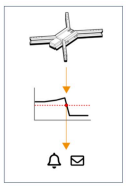
### Download data

Download inspection data with timestamps and the raw measurement data via files or automatically via the open API (Application Programming interface) and analyse in your preferred programme.



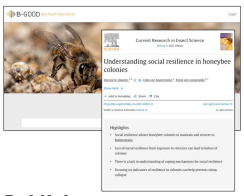

### Use algorithms and models

Data processing / prediction models can be linked to the BEEP platform. Alerts are triggered based on set values to warn the user of a past event like swarming or a health prediction.



### Alerts

Alert notifications are sent to the user triggered by alert rules based on sensor measurements and (prediction) model outcomes.



### Publish

Publication of the results of data analysis on honeybee colonies in scientific journals and sharing the datasets on the honeybee health data portal.

**195K** INSPECTIONS

**43K** ALERTS SENT BASED ON SENSOR DATA

### Data categories

The visualisation represents (a part of) the standardised (500+) categories of beekeeping and honeybee research terms on the platform. The categories are used to customise checklists and is available in 13 languages.

### Open collaboration

BEEP Foundation is not-for-profit and builds open source soft- and hardware. This enables open collaboration for research and education purposes. Code is shared via GitHub or other sharing platforms.

### BEEP Community

Honeybee hive monitoring as well as other nature monitoring is developing rapidly. The BEEP community allows for learning and sharing of new possibilities for insights in honeybee health.

The BEEP platform is made possible by:

B-GOOD

The B-GOOD project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817622.

Organisations using the BEEP platform include:

UNIVERSITEIT GENT
Nottingham Trent University
UNIVERSIDADE DE COIMBRA
MARTIN-LUTHER-UNIVERSITÄT HALLE-WITTENBERG
UNIVERSITÄT BERN
BEESOURCES
UNIVERSITY OF THE AEGEAN
UNIVERSITY OF CAMBRIDGE
INRAE
DTU
NBV
van hall larenstein