



MUST-B Developing a holistic and integrated risk assessment approach of multiple stressors in bees

Management Board Meeting
20 June 2018

Background

Excessive bee mortalities and honey bee colony weakening could lead to a pollination crisis and put the EU beekeeping/farming sectors in difficulty.

A proper RA methodology is required to take into account the complexity of the environment of bees (multiple stressors and effects at the colony and landscape level) and to determine the factors leading to those excessive bee mortalities and ultimately to provide proper mitigation actions.

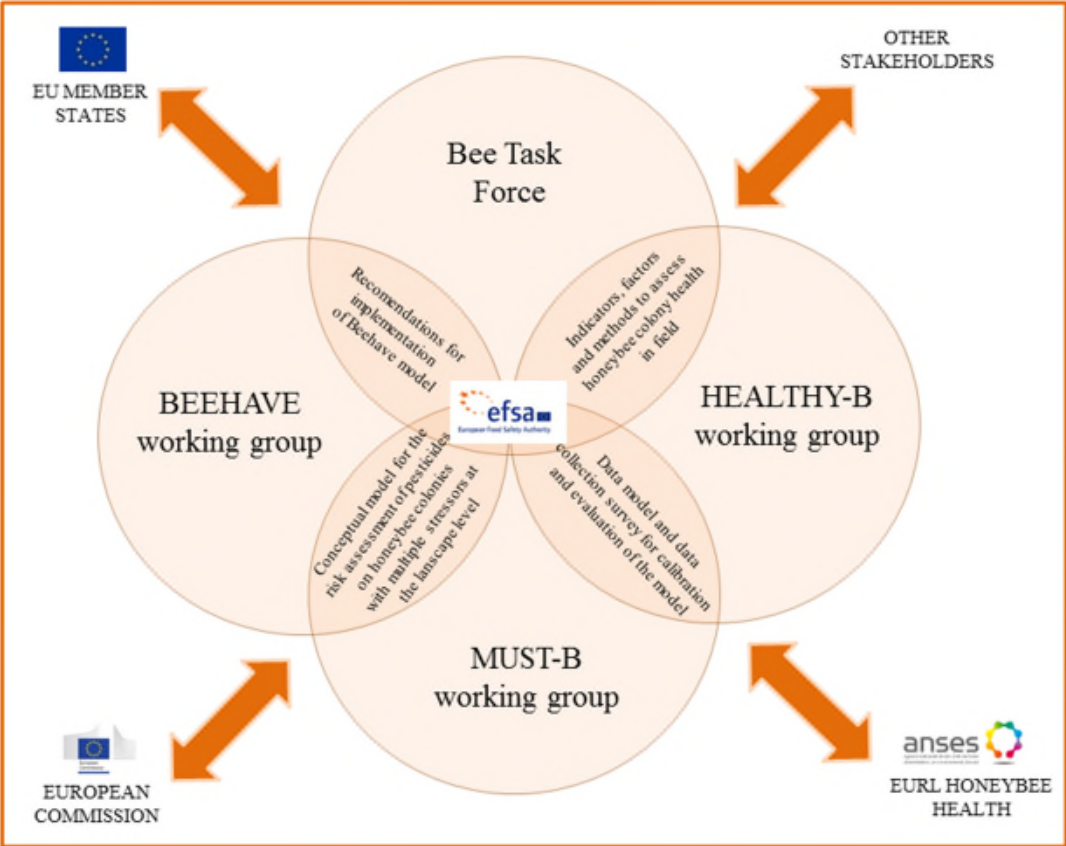
Need to develop a holistic and integrated approach, involving multidisciplinary scientific teams and stakeholders, to assess bee health in the context of multiple stressors.

Background – Initial work

- Pulling together existing work across EFSA's Panels/units :
 - Pesticides, invasive species, infectious disease ...
- Bringing other concerns:
 - nutrition, climate change ...
- Mapping existing research programmes to identify gaps.

Rather than addressing a hazard, we're addressing a problem

FRAMEWORK



3 pillars rooted in EFSA strategic objectives

- **1 - Develop tools & methodologies** for RA of multiple stressors in bees at the landscape level

=> *Prepare for future RA challenges*

- **2 – Gather robust data** (harmonised & standardised) for evidence-based RA of bee health

=> *Widen EFSA's evidence base and optimise access to its data*

- **3 – Engage stakeholders** for harmonised data collection and data sharing in EU on bee health

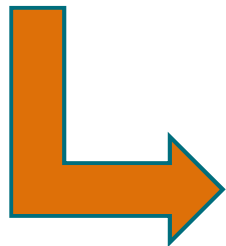
=> *Prioritise public engagement in the process of scientific assessment*

PILLAR 1 - From Beehave to ApisRAM model

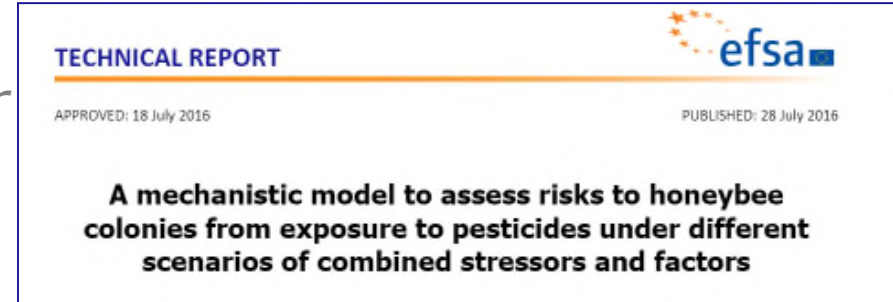
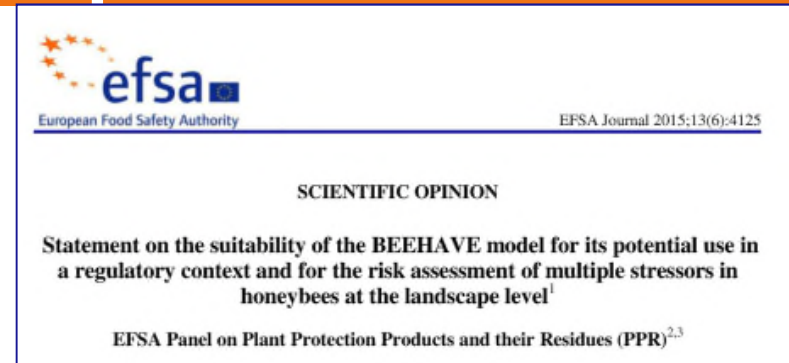
- **June 2015:** *Suitability of the Beehave model for RA of multiple stressors at landscape level (PPR Panel/Beehave WG)*



- **July 2016:** *Conceptual model for RA multiple stressors at landscape level (MUST-B WG)*



- **March 2017 - March 2021:** *ApisRAM: a landscape scale agent-based simulation model for ERA of PPPs and other stressors (€500K, MUST-B Steering Committee)*

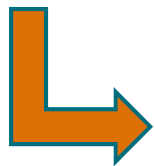


PILLAR 2 - Robust data for RA

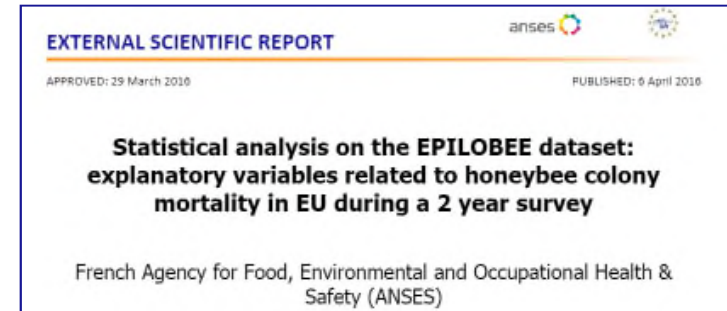
- **March 2016:** *Analysis of EPILOBEE dataset and lessons learnt*



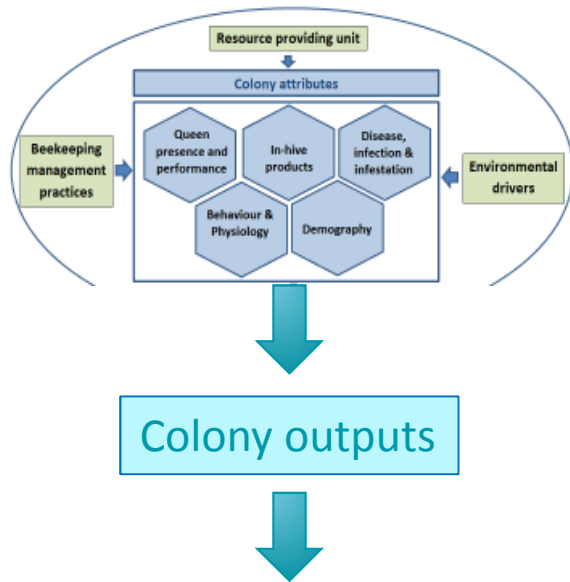
- **May 2017:** Harmonised & standardised data collection/reporting with structured data models (SSD2) for calibration/evaluation of ApisRAM by MUST-B WG



- **2018-2020:** *Targeted and harmonised data collection to calibrate and evaluate ApisRAM (€1 million, MUST-B Steering Committee)*



HEALTHY-B: Toolbox for Bee Health Assessment



data collection

Indicators (colony) & Factors for harmonised monitoring of bee health in field conditions (environment)

different stakeholders/DB

Beekeepers, labs, researchers/DB

different scales

hive, regions, MS, EU

Health Status Index

colony is dead/alive
very good/good/poor/weak status

- Analysis bee health in space and time
- Actions by beekeepers and RM

ApisRAM calibration/evaluation

Research project on field data collection for honey bee colony model evaluation

OC/EFSA/SCER/2017/02

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Kick-off meeting
EFSA, Parma 25 January 2018



PILLAR 3 - From stakeholders to EC

- **2014:** Scientific report of Bee Task Force on *research gaps*
- **2016:** EKE with stakeholders to *prioritise research under H2020 framework* based on EFSA scientific report on research gaps
- **SFS-16-2017** on *Bee Health & Sustainable pollination* (€9 million, Multiple stressors (chem/biol/envir/nutritional))

Projects should fall under the concept of the 'multi-actor approach'^[1]. The projects should ensure appropriate dissemination to the breeding and professional sectors and other relevant stakeholders to facilitate uptake of results. There should be cooperation as appropriate with relevant initiatives, e.g. in the context of MUST-B, and other funded projects in this field, e.g. those selected under SFS-28-2017.



PILLAR 3 - From stakeholders to EC

- **April 2016:** consultation of stakeholders involved in measuring, analysing and reporting bee health in EU on EFSA scientific opinion
- **Sept. 2016:** HEALTHY-B toolbox & indicators/factors for harmonised monitoring of bee health in field conditions
- **SFS-07-2018** on *Making EU beekeeping healthy & sustainable* (€8 million, Bee health monitoring & Partnership)



Scope:

Proposals will develop ready-to-use tools for operationalising the 'Health Status Index' developed by EFSA^[1] to enable data collection and return to beekeepers, while exploring the various socio-economic and ecological factors beyond bee health to provide comprehensive blueprints of successful business model(s) of European beekeeping. Proposals should also consider issues related to emerging risks or pathogens (e.g. the small hive beetle and the Asian hornet *Vespa velutina*). Proposals should aim to create an EU platform to collect and share knowledge of science and practice related to honeybees, their

Towards a knowledge community on bee health RA

- **June 2017:** *EP Apiculture and Bee Health Working Group of the Intergroup on Climate Change and Sustainable Development* tasked EFSA to organise a **scientific Symposium** on data sharing/collection in bee health in EU
- **Sept. 2017:** EFSA facilitates the set up of a **EU Bee Partnership** to collect and share data on bee health in Europe
- **SO 4:** *Build the EU's scientific assessment capacity and knowledge community*



EU Bee Partnership Discussion Group



EU Bee Partnership Discussion Group

- Coordinated by EXREL & Scientific support by SCER (chair)/ALPHA; follows the Stakeholder Engagement Approach (SEA)
- 11 members (ECPA, BeeLife, PanEU, EPBA, COLOSS, ...)
- Aim: define the ToR on the bee partnership. Published 18 May 2018 (close to the first international World Bee Day).
- presented at European Week of Bees and Pollination (26-28 June) and at EP High level conference in June 2018

Create **synergies**, facilitate data sharing & access, and ultimately increase evidence & best practice on bee health

EP AGRI Committee, 23 January 2018

- Vote on a motion for resolution on *Prospects and challenges for the EU apiculture sector*:
 - Asks in this regard for the setting up of a common digital database, harmonised at EU level in order to exchange information among beekeepers, researchers and all parties involved;
 - Therefore calls on the Commission to promote and boost European beekeeping research projects (246), such as **EFSA's research programmes on the "Collecting and Sharing Data on Bee Health: towards a European Bee Partnership"**

Overview on the next steps of MUST-B

- **2018:** potential EP mandate and EU Bee Partnership on data sharing and collection

- **By 2020:**
 - Finalised data collection for ApisRAM
 - Scientific opinion on holistic RA approach of multiple stressors in bees

- **By 2021:** a calibrated landscape scale agent based simulation model in 2 EU MS (DK/PT)