

# The Pollinator Metadata Standard (PMS)

A **FAIR** way to harmonise pollinator & beekeeping data

## What Is PMS

- A harmonised metadata schema
- Built on global standards + pollinator vocab
- Findable, Accesible, Interoperable, Reusable (**FAIR**)

## Why It Matters

- Pollinator data is scattered
- Inconsistent & hard to reuse

## How It Works

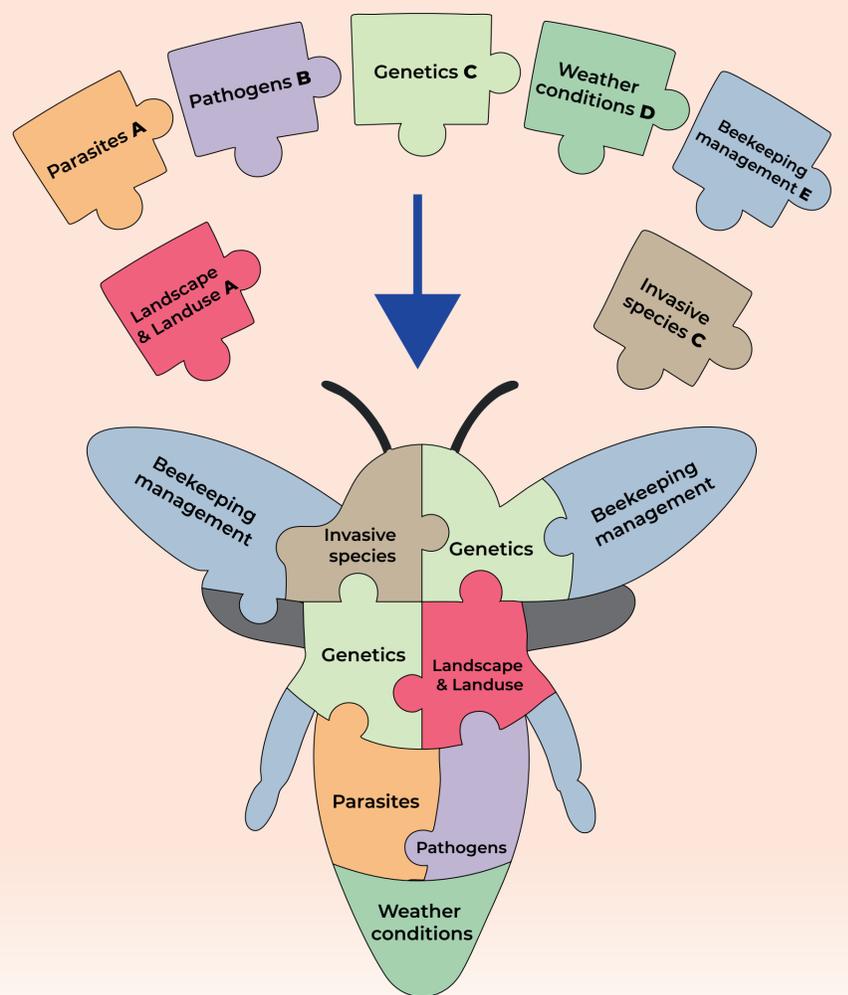
- Standardised descriptors & vocabulary
- Modular: public + private elements

## Where It Helps

- Research & environmental monitoring
- EU reporting & risk assessment
- Tools for beekeepers & vets

## Why It's Unique

- First pollinator-focused metadata standard
- Open-source & community-driven
- Embedded in the EU Pollinator Hub



PMS is the outcome of the Apimondia WG12 on Bee Data

Join us & make pollinator data FAIR

[pollinatorhub.eu](http://pollinatorhub.eu)

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**BeeLife**  
European Beekeeping Coordination  
+ Partners

**efsa**  
EUROPEAN FOOD SAFETY AUTHORITY  
Co-funded project

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# VARROMETER

## Customise Your Varroa Control Strategy

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### Why VARROMETER?

Varroa destructor is the most challenging biotic stressor for honey bee health.

Despite abundant scientific and technical knowledge, many beekeepers find it difficult to:

- **Select strategies** tailored to their specific conditions.
- **Stay up-to-date** with the latest veterinary products and legislation.

**VARROMETER** was created to bridge this gap, offering a customised, up-to-date tool, based on Integrated Pest Management (IPM) of varroa.

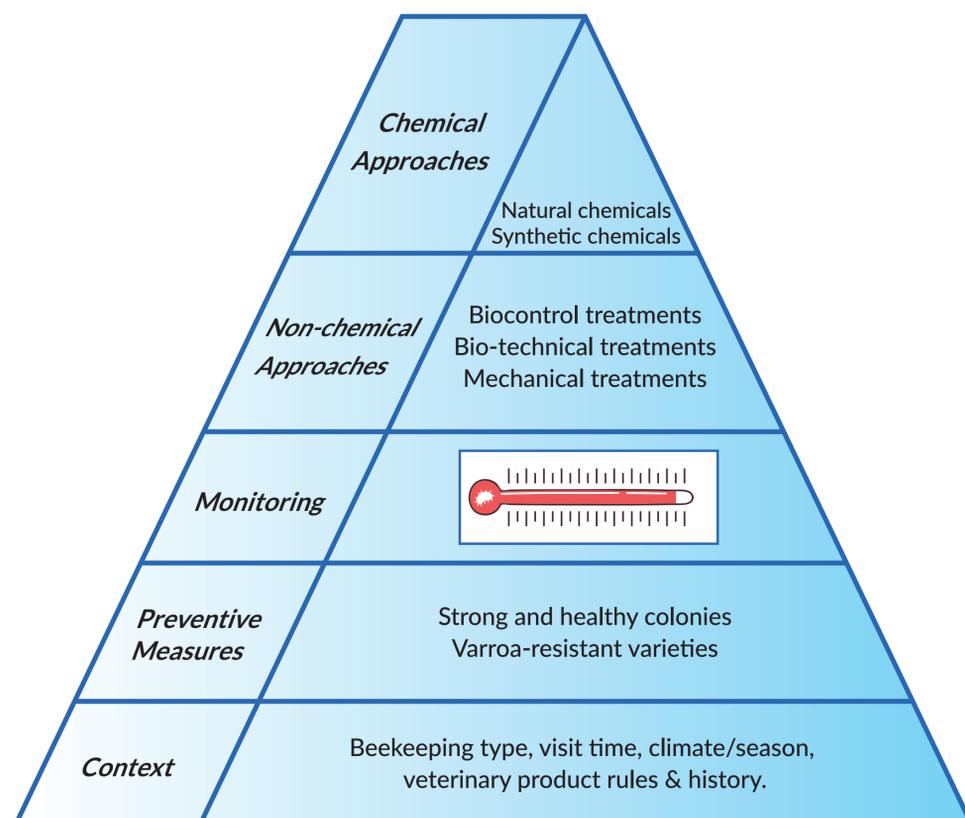
### Results & Innovation

- Computes 3,840 strategy combinations
- Rotates methods to reduce resistance
- Adapts to beekeeping styles & laws
- Practical tool for vets & advisors

**Next steps:** Broader testing, international adaptation, and integration into digital platforms.

### What is VARROMETER?

Novel Interactive digital tool for beekeepers and honey bee veterinarians. It provides tailored recommendations for varroa control.



### Acknowledgements

We thank the BeeLife network members and collaborating beekeepers for their feedback and support in the development of the VARROMETER tool.



# Honeybees as Biomonitoring Tools for Agrochemical Exposure in Romanian Agricultural Landscapes

Honeybees (*Apis mellifera*) are effective bioindicators of agrochemical exposure. We wanted to study the situation in Romanian agricultural landscapes. The APISANA Project created a mobile laboratory for sampling, conserving, and analysing bee and plant matrices.

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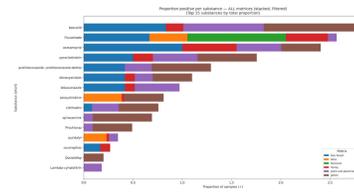
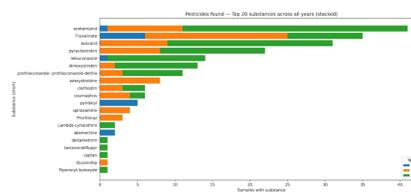
## Methodology

### Field study in Romania (2021–2023)

- **Phase 1 - 2021 and 2022 season (n=146 samples):** broad screening of hive and plant materials (Harvested honey (Acadia and Linden), Beebread, Bees, Brood, Honey from Brood Nest and Super, Pollen, Plant tissues, Wax).
- **Phase 2 - 2023 season (n=33 samples):** focused sampling of the most informative matrices (Beebread, Brood, Honey from broodnest, Wax, Rapeseed plant, Sunflower plants).
- Residues analysed using **GC-MSMS and LC-MSMS** (469 agrochemicals screened).

## Results <sup>1</sup>

- 2021: 22.00% positive samples; honey and bees most frequently contaminated by fluvalinate (I/A) & pyridalyl (F)
- 2022: 41.67% positive samples; honey most contaminated by fluvalinate (I/A), acetamiprid (I) and boscalid (F)
- 2023: 93.94% positive samples; honey and rapeseed plants most frequently contaminated; fluvalinate (I/A), acetamiprid (I, >95% in rapeseed), boscalid (F)
- Ranking (in terms of positive samples): Honey Brood Nest > Honey Supper > Beebread > Bees > Rapeseed plants
- Ranking (in terms of magnitude of residues (mg/kg)): Rapeseed plants > Beebread > Honey Brood Nest > Bees > Pollen



## Conclusions

- Brood nest honey and beebread are key biomonitoring matrices.
- Our LOQs were too high (0.01 mg/kg). LOQs of 1 ppbs would have been more relevant.
- Acetamiprid is widespread, risking bee health and product marketability.
- Veterinary acaricides add pressure; residues persist from synthetic veterinary treatments (e.g., taufluvinalinate).
- Recommendation: Brood chamber wax should be renewed every 3 years and removed from the wax circuit.
- Findings support reducing pesticide use in landscapes.

1. I = Insecticide, A = Acaricide, F = Fungicide

