Collecting and Sharing Data on **bee health** Towards a European Bee **Partnership**

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Bee health data within the Crop Protection Industry

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for the
European Crop Protection Association

efsa
European Food Safety Authority

European professional beekeepers association e.p.b.a.

copa cogeca
european farmers european agri-cooperatives

European Crop Protection

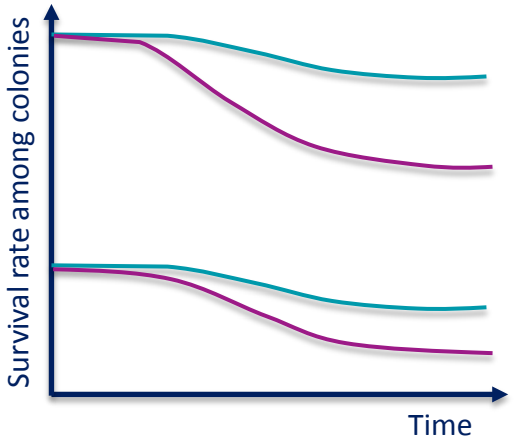
European Beekeeping Coordination

BEE HEALTH IN THE CONTEXT OF THE PESTICIDE REGULATION

- Regulation (EC) No 1107/2009 (previously Directive 91/414 (EEC) and national regulations)
  - Protection goal: "*no unacceptable acute or chronic effect on colony survival and development, taking into account effects on colony larvae and honeybee behaviour*"
  - Resulting data package includes, if triggered by the outcome of the first tier risk assessment:
    - Field studies, within tunnels to confine exposure
    - Open-field studies
    - These studies use honeybee colonies

WE ARE WORKING WITH BEE COLONIES

- Bees used in field testing are similar to beekeepers' bees:
  - Contract laboratories, who perform the studies, follow "good beekeeping practice"
  - Health / exposure status representative of local colonies
  - For a study, colonies are assessed and selected so that they present the highest chances to survive and potentially overwinter, as we need robust control results



Healthy controls make effects of a product, even slight, easier to detect

EXAMPLE

Treatment Hive	Date of sampling [DD.MM.YYYY]	*Nosema* sp. / *Malpighamoeba mellificae*			*Varroa destructor* infestation rate	*Paenibacillus larvae* category
		1. Evaluation	2. Evaluation	3. Evaluation		
Ta	17.06.2014	medium / -	0 / -	low / -	0.0 %	0
Ta	10.07.2014	0 / -	0 / -	0 / -	0.7 %	0
Ta	15.10.2014	0 / -	0 / -	0 / -	5.8 %	0
Ta	16.03.2015	0 / -	0 / -	0 / -	1.9 %	0
Tb	17.06.2014	low / -	0 / -	0 / -	0.0 %	0
Tb	10.07.2014	0 / -	0 / -	low / -	0.0 %	0
Tb	15.10.2014	0 / -	0 / -	0 / -	5.0 %	0
Tb	16.03.2015	0 / -	0 / -	medium / -	0.3 %	0
Tc	17.06.2014	0 / -	0 / -	0 / -	0.2 %	0
Tc	10.07.2014	low / -	low / -	low / -	0.4 %	0
Tc	15.10.2014	0 / -	0 / -	0 / -	8.3 %	0
Tc	16.03.2015	0 / -	0 / -	0 / -	0.2 %	0
Td	17.06.2014	medium / -	0 / -	0 / -	0.9 %	0
Td	10.07.2014	0 / -	0 / -	0 / -	0.0 %	0
Td	15.10.2014	0 / -	0 / -	0 / -	3.3 %	0
Td	16.03.2015	medium / -	medium / -	high / -	0.0 %	0
Te	17.06.2014	medium / -	0 / -	0 / -	0.2 %	0
Te	10.07.2014	0 / -	0 / -	0 / -	0.2 %	0
Te	15.10.2014	0 / -	0 / -	0 / -	3.8 %	0
Te	16.03.2015	0 / -	0 / -	0 / -	0.0 %	0
Tf	17.06.2014	0 / -	low / -	0 / -	0.0 %	0
Tf	10.07.2014	low / -	medium / -	0 / -	0.6 %	0
Tf	15.10.2014	0 / -	0 / -	0 / -	6.8 %	0
Tf	16.03.2015	0 / -	0 / -	high / -	1.1 %	0

Samplings:
17.06.2014 (before exposure), 10.07.2014 (before end of exposure), 15.10.2014 (before overwintering), 16.03.2015 (after overwintering)

-: no *Malpighamoeba mellificae* were found

0: no spores of *Nosema* sp. were found, low: 1 – 19 spores of *Nosema* sp. were found, medium: 20 – 100 spores of *Nosema* sp. were found, high: > 100 spores of *Nosema* sp. were found

Category 0: no evidence of *Paenibacillus larvae*

Table 3: Results of the virus analysis in bee samples

		Timing before exposure (sampling date 17 JUN 2014)						
Treatment	Hive	DWV	SBV	ABPV	KBV	CBPV	IAPV	BQCV
Control	Ca	-	-	-	-	-	-	+
	Cb	-	-	-	-	-	-	+
	Cc	-	-	-	-	-	-	+
	Cd	-	-	-	-	-	-	+
	Ce	-	-	-	-	-	-	+
	Cf	-	-	-	-	-	-	+
Test item	Ta	-	-	-	-	-	-	-
	Tb	-	-	-	-	-	-	+
	Tc	-	-	-	-	-	-	+
	Td	-	-	-	-	-	-	+
	Te	-	-	-	-	-	-	+
	Tf	-	-	-	-	-	-	+

		Timing 'before end of exposure' (sampling date 10 JUL 2014)						
Treatment	Hive	DWV	SBV	ABPV	KBV	CBPV	IAPV	BQCV
Control	Ca	-	+	-	-	-	-	+
	Cb	-	-	-	-	-	-	+
	Cc	-	-	-	-	-	-	+
	Cd	-	-	-	-	-	-	-
	Ce	-	-	-	-	-	-	+
	Cf	-	-	-	-	-	-	+
Test item	Ta	-	-	-	-	-	-	+
	Tb	+	+	-	-	-	-	+
	Tc	-	-	-	-	-	-	+
	Td	-	-	-	-	-	-	+
	Te	-	-	-	-	-	-	+
	Tf	-	-	-	-	-	-	+

+, respective RNA present; -, respective RNA not detectable

WHAT TYPE OF DATA WE GENERATE AND HAPPY TO SHARE

- Health status of experimental control
  - To compare with general data
  - To help predicting survival rate
- Survival rate of these colonies
- Additional measurements in controls:
  - Foraging activity on the crop, behaviour
  - Colony strength, presence of queen, pollen storage and area of nectar or honey, area containing cells with eggs, larvae and capped cells
  - Development of brood
  - Where available, overwintering success

WHAT TYPE OF DATA ARE WE INTERESTED IN, AND HAPPY TO HELP GENERATE

- To make our regulatory testing easier:
  - Agreed colony-level criteria that may be used routinely to better select our colonies
  - Trending of colony numbers vs overwintering success
  - Disease trends, within an area
  - Modelling, to better predict colony's survival chances and better select those that are suitable for research purposes

- The above would also help us improve our stewardship and monitoring contributions (next slide)

INDUSTRY'S ACTIONS IN STEWARDSHIP AND MONITORING (EXPERT GROUPS)

- Monitoring of colony health traits:
  - ICP-PR: international Committee on Plant-Pollinator Relationship
  - Database constituted in order to guide future protocols
  - Compilation of criteria used to assess a colony's health

- Effectiveness of risk mitigation measures in the field:
  - MAgPIE project
  - Operation Pollinators
  - etc

THANK YOU FOR YOUR ATTENTION

- Questions?