



Bee Surveillance Programmes, Bee Mortality and Risk Assessment

Apimondia – Montpellier – 18 Sept 2009

- EFSA is the European agency responsible for risk assessment in the area of food and feed safety.
- Works in close collaboration with national authorities and in open consultation with its stakeholders



EFSA's tasks

1. **Provide scientific advice**, opinions, information, and technical support for Community legislation and policies
2. **Collect and analyse data** for characterisation and monitoring of risks
3. Promote and coordinate **development of uniform risk assessment methodologies**
4. **Communicate risks** related to all aspects of EFSA's mandate

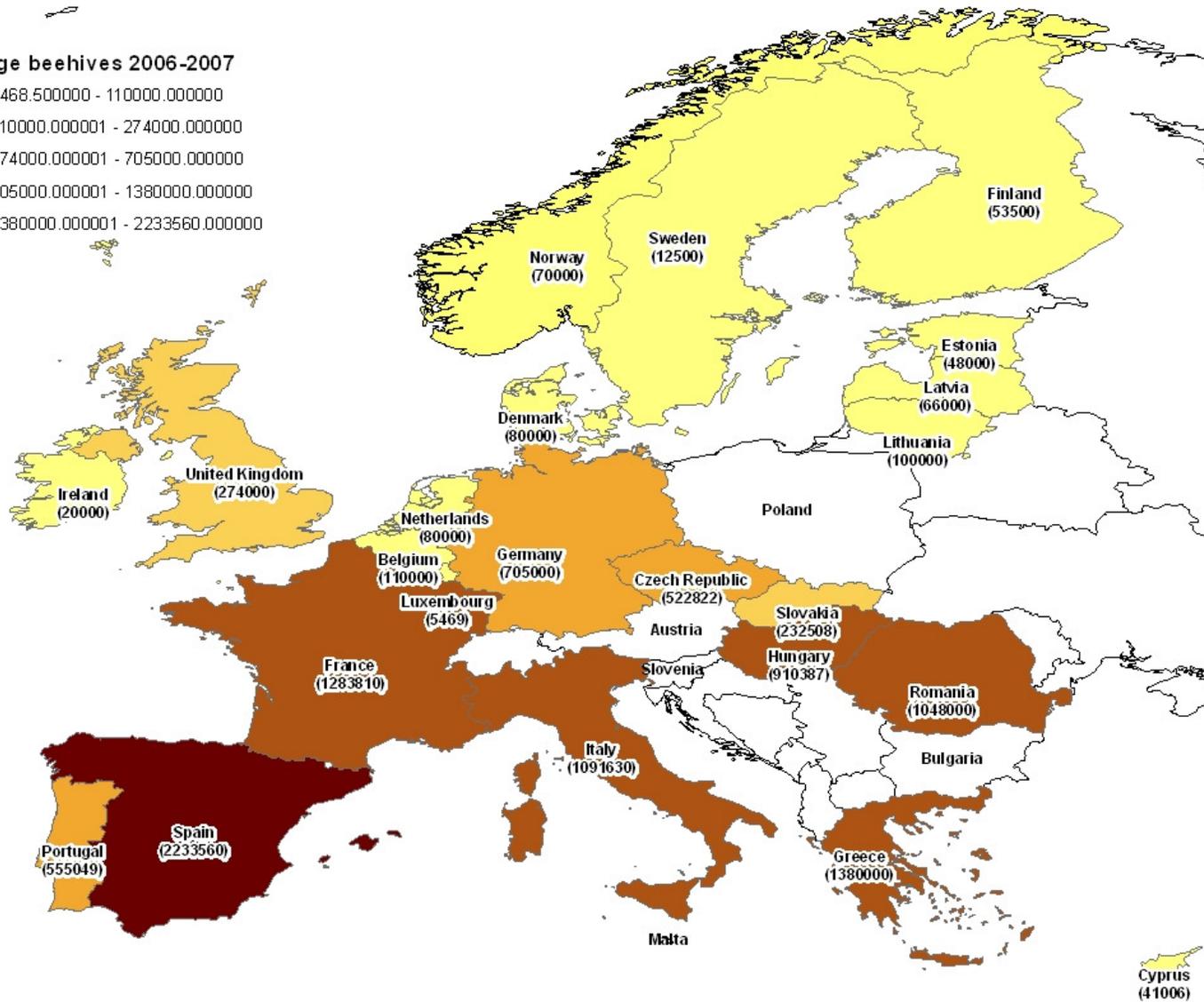
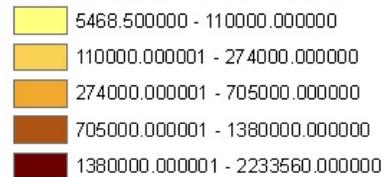
- Guidance Document Terrestrial Ecotoxicology – Revision of SANCO/10329/2002
- Assigned to Plant protection products and their residues panel (PPR)
- **Project plan 3 years: 2009 -2011**
- **Includes revision of Risk Assessment for bees**



- Request from “Mortality, collapse and weakening in bee hives” working group of AFSSA
- Short questionnaire distributed through the EFSA focal point network
- Requested data on:
 - monitoring programmes for chemical residues in honey
 - surveillance programmes for weakening, colony collapse and mortality
 - mortality rates 2006-2007
 - bee populations, bee keepers and honey production 2006-2007

Distribution of bee populations in Europe

Average beehives 2006-2007



Mortality rates 2006-2007

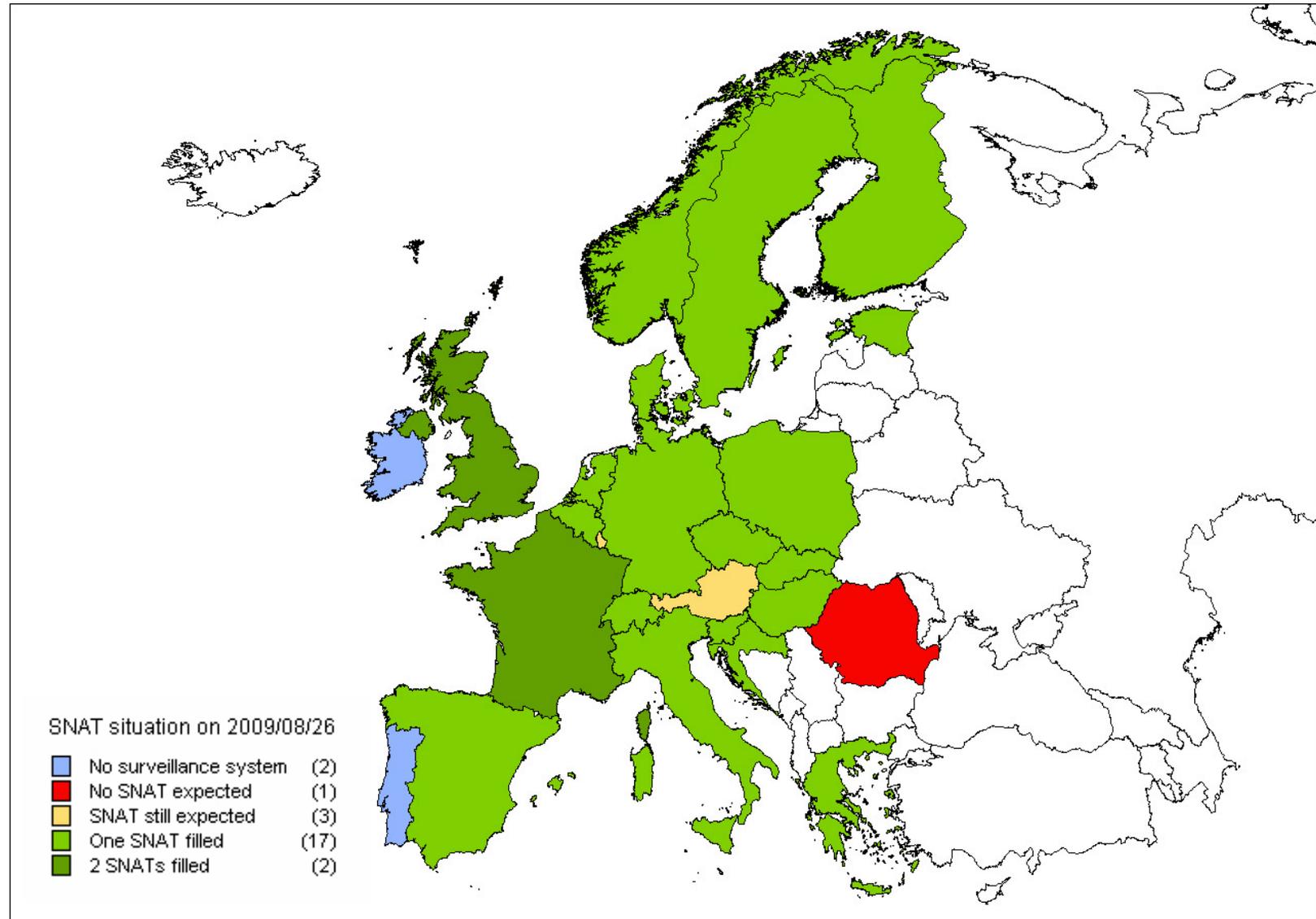
| Country | 2006 Mortality rate (%) | 2007 Mortality rate (%) |
|----------------|----------------------------|----------------------------|
| Czech Republic | 10 | 20 |
| Denmark | 15 | 7 |
| Estonia | 8-10 | 8-10 |
| Finland | 9.3 | 10.2 |
| France | 808* | 142* |
| Germany | 13 | 9 |
| Italy | 30-40 | 40-50 |
| Luxembourg | 16 | 20 |
| Netherlands | 26 | 15 |
| Norway | 10.6 | |
| Romania | 10 | >20 |
| Spain | 6-40 | 6-40 |
| Sweden | 18 | 12 |
| United Kingdom | 11.1 | 11.7 |

* Mortality data expressed as number of statements

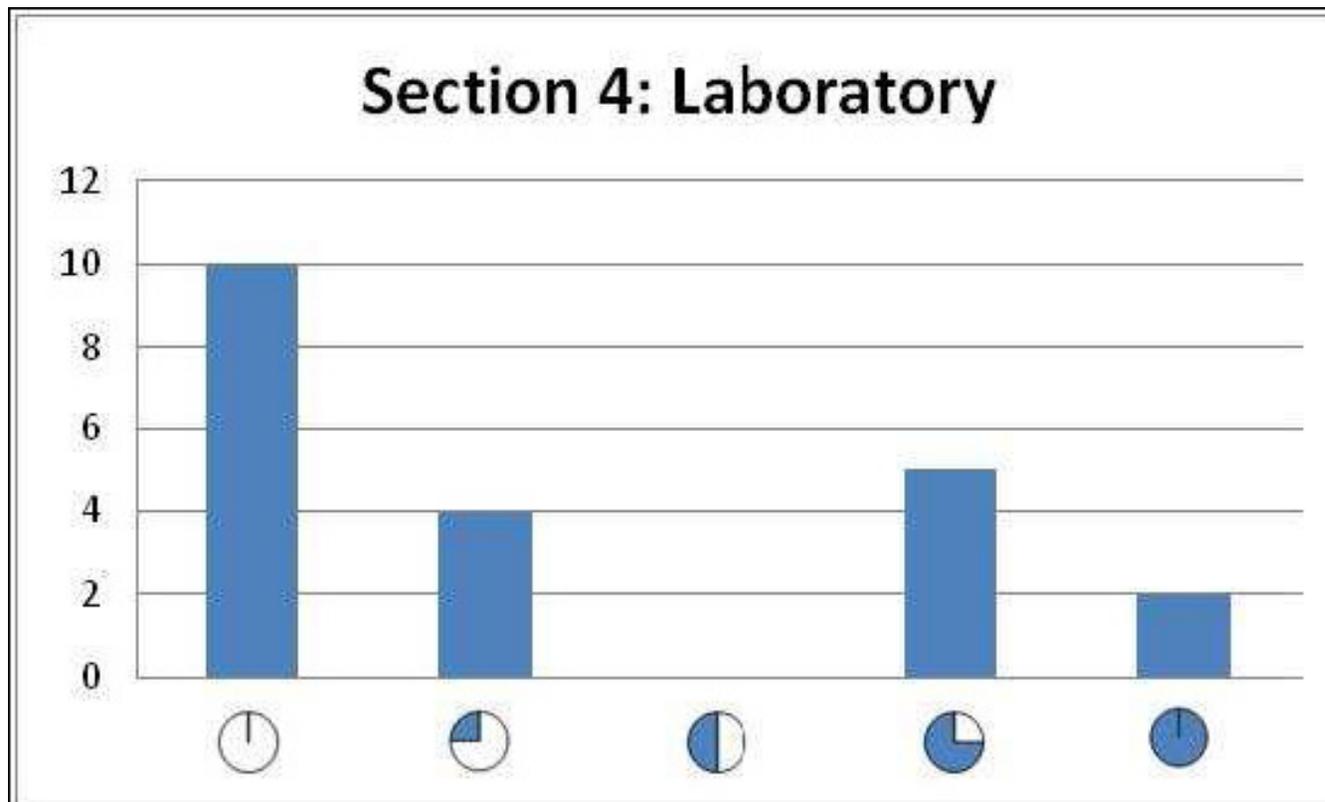
Bee Surveillance Project - Objectives

- WP1: description and critical analysis of surveillance programmes; recommendations for the improvement and harmonisation at the European level;
- - WP2: collection and analysis of the epidemiological dataset on colony collapse, weakening and mortality, stemming from the existing surveillance programmes;
- - WP3: critical review and selection of relevant literature on the possible causes of honey bee colony collapse, weakening and mortality.
- The global objective of the project is to facilitate future epidemiological research and surveillance programmes at EU level addressing the phenomenon of honey bee colony losses.

Surveillance Networks Analysed (preliminary results)



Network Analysis- Laboratory Services (preliminary results)



Nearly 50% of the systems have no laboratory facilities to support the surveillance. This is a critical point regarding the efficiency of the systems and their power to identify the cause of colony MWD.

Case Definition

- “Is a set of diagnostic criteria that must be fulfilled in order to identify a case of a particular disease. Case definitions can be based on clinical, laboratory, epidemiological, or combined clinical and laboratory criteria. When a set of criteria is standardized for purposes of identifying a particular disease, then it is referred to as "standard case definition". A surveillance case definition is one that is standardized and used to obtain an accurate detection of all cases of the targeted disease or condition in a given population, while excluding the detection of other similar conditions. “

<http://www.who.int/hac/about/definitions/en/index.html>

Definitions for CCD (preliminary results)

60 Papers reviewed – 20 definitions for CCD

- (i) sudden loss of the colony's adult bee population with very few bees found near the dead colonies;**
- (ii) several frames with healthy, capped brood with low levels of parasitic mites, indicating that colonies were relatively strong shortly before the loss of adult bees and that the losses cannot be attributed to a recent infestation of mites;**
- (iii) food reserves that have not been robbed, despite active colonies in the same area, suggesting avoidance of the dead colony by other bees;**
- (iv) minimal evidence of wax moth or small hive beetle damage; and**
- (v) a laying queen often present with a small cluster of newly emerged attendants**

The rapid and seemingly spontaneous loss, disappearance, and demise of honey bee colonies

A disorder in which disturbing numbers of bees are disappearing from their colonies

Suddenly empty hives, no dead bees inside or around the hive, no bees in the hive, evidence of recent brood (queen and young larvae are left behind), absence of pests (no wax moths or hive beetle, nothing trying to rob the honey). Colony leaves behind brood, honey, pollen & all resources.

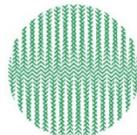
It is characterized by: a rapid loss of adult bees, excess brood in all stages (abandoned in the hive), low level of Varroa, a lack of dead bees in or near the hive

A mysterious malady depopulating beehives around the globe

- **Bee Mortality and Bee Surveillance in Europe
- A Report from the Assessment
Methodology Unit in Response to Agence
Francaise**
(http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1211902584688.htm)
- **Article 36 Report due in November 2009**

Acknowledgments

- Project coordinators –P. Hendrix, M-P. Chauzat, M. Debin (AFSSA)
- Experts from COLOSS – M. Brown, Y. Le Conte, F. Mutinelli, A. Gregorc, W. Ritter, P. Neumann, I. Fries
- COGECA “Honey working group”



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