FEED INFO SESSION - 14th and 15th November 2019

Info session on applications for feed additives

Trusted science for safe food

efsa
European Food Safety Authority

Plenary session 4

Assessment of consumer safety of feed additives - exposure assessment and genotoxicity

15 November 2019

European Food Safety Authority

Assessing consumer exposure to feed additives

Bruno DUJARDIN

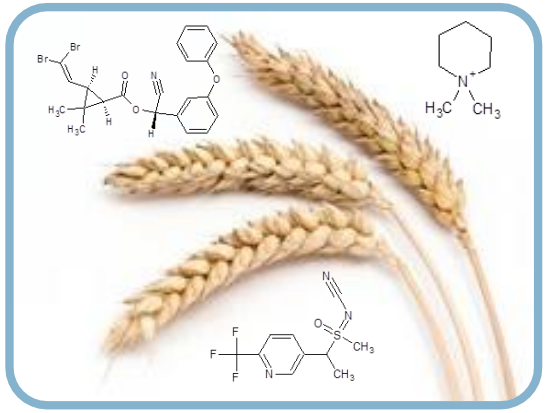
Senior Scientific Officer

Overview

- General principles
- Occurrence data
- Consumption data
- Exposure model

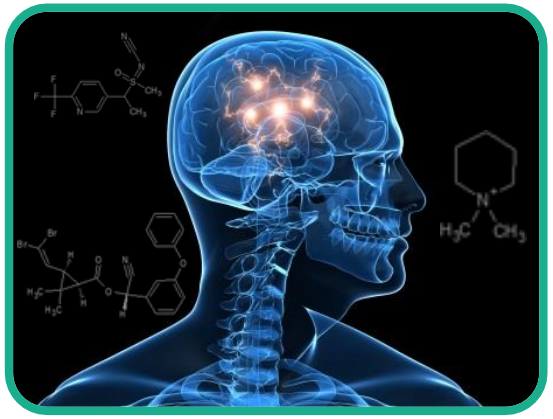
General principles – Dietary exposure

Occurrence



Consumption

Exposure



Guidance on the assessment of the safety of feed additives for the consumer

Adoption date: 27 September 2017

Publication date: 17 October 2017

Application date: 01 May 2018

Available here: https://www.efsa.europa.eu/en/efsajournal/pub/5022

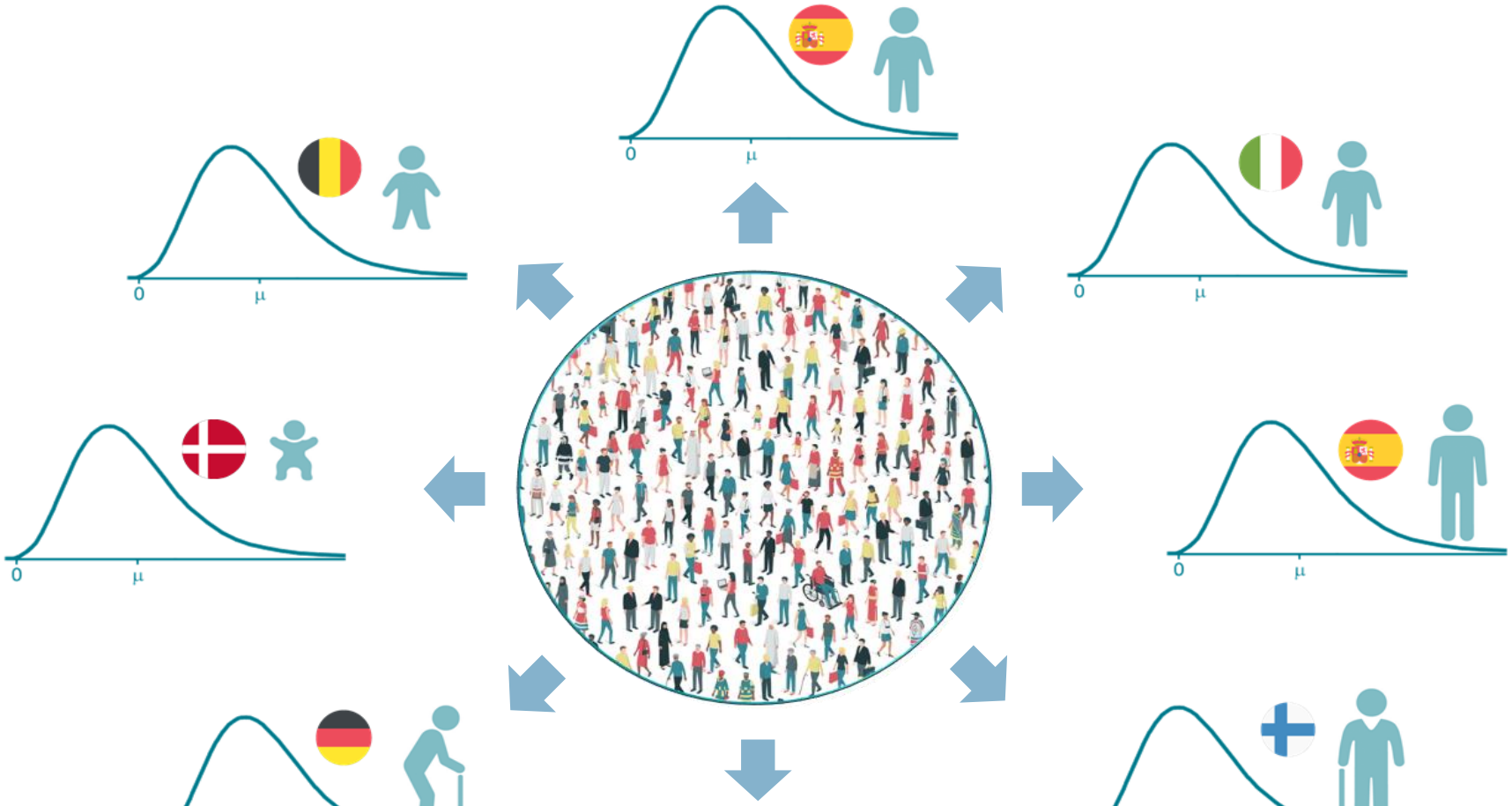
General principles – Individual-based models

Model diet

16 kg

60 kg

Individual-based model



+ 89 other combinations of countries and population groups

Overview

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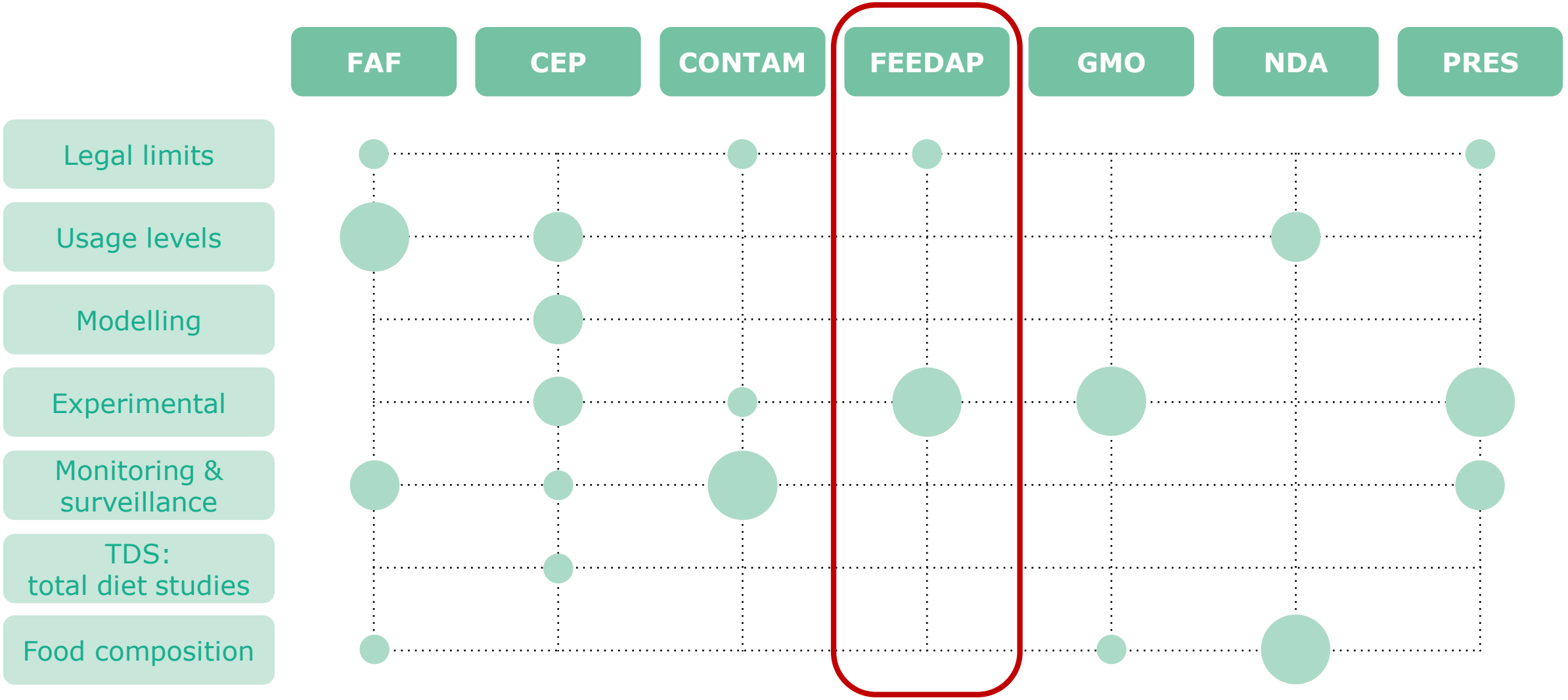
Occurrence data – All chemicals

Data types and their use frequency within different domains



Occurrence data – Feed additives

Food commodities

- meat, fat, liver, other offal (including kidney), milk, eggs, honey, fish and seafood
- mammals and poultry handled separately

Concentration

- μ + 2*SD (≥ 6 animals)
- highest (< 6 animals)

Rules for meat and fat

- mammals meat (80% muscle, 20% fat)
- poultry meat (90% muscle, 10% fat)
- poultry skin ~ poultry fat

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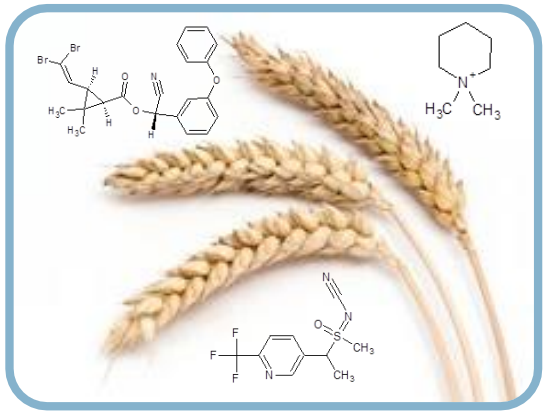
Consumption data – Comprehensive database

The **EFSA Comprehensive Database** contains:

- *24-hour recall* or *dietary record* surveys
- data collected at individual level (94,532 individuals)
- most recent data within each country (51 surveys, 23 countries)
- random sample at national level
  - ➢ different age classes, from infants to elderly
  - ➢ special population groups

Consumption data – Raw vs processed

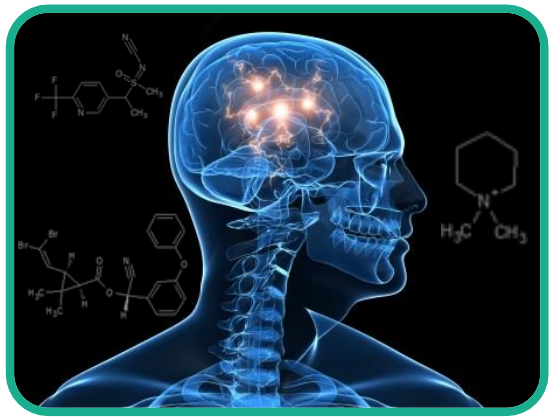
Occurrence



RPC Model

Consumption

Exposure



Data availability:

- Specific food sector areas

  e.g. pesticide residues, GMOs, feed additives, …

- Raw primary commodities (RPC) only

  single-component foods, unaltered by processing

Database also includes:

- RPC derivatives

  single-component foods, altered by processing

- Composite foods

  foods consisting of multiple components

Consumption data - RPC Model

Composite foods

Raw Primary Commodities

RPC derivatives

1. Disaggregation step

Ratio of ingredients

2. Conversion step

Reverse yield factors

Overview

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Exposure model – Chronic vs acute

Chronic exposure assessment

- Exclude dietary surveys with 1 reporting day
- Calculate total chronic exposure for each individual
- Derive mean and P95 exposure per survey (total population)

Acute exposure assessment

- Calculate acute exposure for each food and consumption day
- Derive P95 exposure per food and survey (consumers only)

Exposure model – Chronic consumption

Individual chronic consumption data

Peter

KG 18 kg

Food categories

	Consumption DAY 1 (g)	Consumption DAY 2 (g)	Average consumption (g/day)
	150	250	**200**
	65	0	**32.5**
	200	100	**150**
	0	15	**7.5**

Exposure model – Chronic exposure

Individual chronic exposure calculation

Peter

KG 18 kg

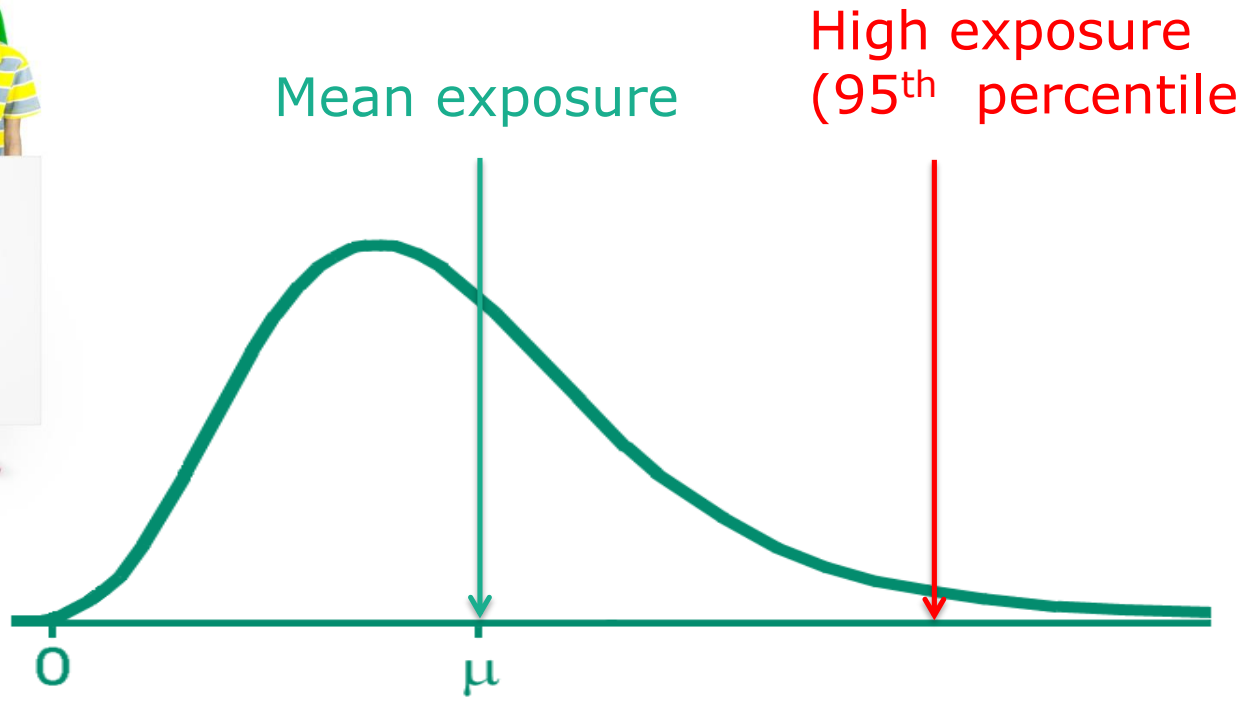
Food categories

Average consumption (g/day)	Concentration (mg/kg)	Chronic exposure (mg/day)
200	1.8	**0.36**
32.5	30	**0.98**
150	0.75	**0.11**
7.5	2	**0.02**

Total chronic exposure in mg per day:	**1.47**
Total chronic exposure in mg/kg bw per day:	**0.08**

Exposure model – Chronic distribution

Distribution of individual chronic exposures



FACE Calculator

- ***Feed Additives Consumer Exposure Calculator***
  (i.e. online tool implementing the exposure model)

- ***Version 1.1, February 2019***
  https://www.efsa.europa.eu/en/applications/feedadditives/tools

- ***Registration required!***
  Send an email to data.collection@efsa.europa.eu

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