Processing factors for pesticide residues in food

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What are we talking about?

- Effect of processing on food
- Effect of processing on chemical
- Mainly used for pesticides

- Effect of processing on food
- Dilution/concentration factor
- Process-specific

- Effect of processing on chemical
- Process-specific
- Chemical-specific
Legal requirements

**Regulation (EC) No 1107/2009**
- Approval criteria for pesticide active substances
- “...reliably predict ... the effects of processing and/or mixing...”

**Commission Regulation (EU) No 283/2013**
- Data requirements for pesticide active substances
- Studies for the effect of processing on residues (nature/magnitude)

**Regulation (EC) No 396/2005**
- EFSA to derive PFs when assessing Maximum Residue Levels (MRL)
- Annex VI – List of processing factors

➤ Why is Annex VI still empty?
Why is Annex VI still empty?

Guidance and data requirements
- How to assess processing studies?
- Most relevant processed commodities?

Databases on processing factors
- Only available at national level

Dietary exposure assessment
- Pesticide Residues Intake Model (PRIMo)
- Limited data for processed commodities

Procurement
BfR/BPI/RIVM
Timelines
December 2016 – November 2018

Objective 1
Compendium of Representative Processing Techniques investigated in regulatory studies for pesticides

Objective 2
Linking the processing techniques investigated in regulatory studies with the EFSA food classification and description system, FoodEx2

Objective 3
European database of processing factors for pesticides in food
Objectives 1 & 2

Compendium on processing techniques
- Analysis of available processing studies
- Selection of most relevant processes
- Elaboration of flowcharts
- Identification of the final and intermediate products

Linking with FoodEx2 classification
- Derive FoodEx2 code for each final product
- Identify key facets for the processing technique
Objective 3 – Data and methodology

Processing studies considered
- EFSA Conclusions and Scientific Reports (Reg. 1107/2009)
- EFSA Reasoned Opinions (Article 12 of Reg. 396/2005)
- issued until 30/06/2016

Assessment criteria
- Representativeness (see objective 1)
- Mass balance
- Storage stability
- Analytical aspects
- Calculation of median processing factors
Objective 3 - Outcome

**Individual processing factors (5731)**
- 866 studies
- 143 active substances
- 222 processed commodities
- 2941 acceptable; 1151 indicative

**Median processing factors (1192)**
- 125 active substances
- 203 processed commodities
- 571 reliable; 211 indicative
Main achievements through procurement

**Improved assessment criteria (objective 1)**
- Most relevant processed commodities identified
- Representativeness of processing studies

**PF Database at EU level (objectives 2 & 3)**
- Publically available (Excel spreadsheets)
- Standardised coding for substances (PARAM catalogue)
- Standardised coding for commodities (FoodEx2)

**Considerations for the future**
- Process for updating the database?
- Integration with other databases of EFSA?
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**Procurement**
- BfR/BPI/RIVM

**RPC model**
Food consumption data

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
Dietary exposure assessment
Raw Primary Commodity (RPC) Model

1. Disaggregation step
   Ratio of ingredients

2. Conversion step
   Reverse yield factors

- Food as consumed
- Raw Primary Commodities
- RPC derivatives
RPC Model – Main benefits

Harmonisation and standardisation

- Comprehensive Database will be used in new areas
- Individual-based modelling at level of RPC

Flexibility

- No longer limited by the available occurrence data
- Use of processing factors
Case studies
- Scientific opinion on pesticides in foods for infants and young children (w/o processing factors)
- Feed Additives Consumer Exposure (FACE) calculator

Validation and finalisation
- Final checks currently ongoing
- Technical report expected by end 2018
What’s next?

**Cumulative exposure to pesticides**
- RPC consumption data
- Processing factors collected by BfR, BPI & RIVM

**Pesticide Residues Intake Model (PRIMo)**
- RPC consumption data
- Incorporate PFs?
- Individual based modelling?

**PF Database**
- How to ensure regular updates?
- How to improve accessibility?
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