

26 May 2020

2020 Roundtable with NGOs

Cumulative Risk Assessment of pesticide residues

Luc Mohimont
Pesticide Residues Unit

Trusted science for safe food

2007

2009

2011

2013

2015

2017

2019

Methodological development for pesticides

- *Methodology for cumulative assessment groups (PPR, 2013)*
- *Opinion on dissimilar mode of action (PPR, 2013)*
- *Guidance for probabilistic exposure assessment (PPR, 2012)*
- *Tiered methodology for cumulative risk assessment (PPR, 2009)*

Pilot for pesticides

- *Effects on the thyroid and the nervous system*
- *Framework partnership agreement with RIVM (MCRA software)*
- *EC Working Group on risk management questions*

Cross-cutting activities

- *Guidance on risk assessment of combined exposure to multiple chemicals (SC, 2019)*
- *Guidance on uncertainty analysis (SC, 2018)*
- *FoodEx2 (EFSA, 2015)*
- *Raw Primary Commodity (RPC) model (EFSA, 2019)*

Scope

Pilot for retrospective risk assessment

Target organs

1 chronic / 1 acute



Thyroid



Nervous system

Monitoring data

3-year cycle / 30 commodities



2014



2015

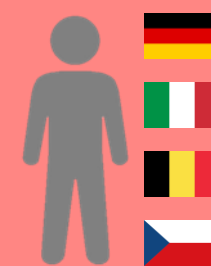


2016

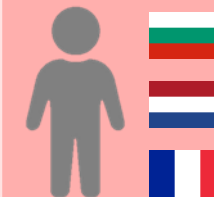


Population groups

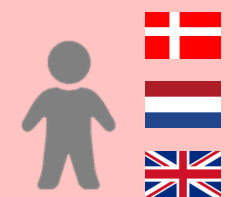
10 groups in total



Adults



Children



Toddler

SCIENTIFIC REPORT



APPROVED: 20 March 2020

doi: 10.2903/j.efsa.2020.6088

Cumulative dietary risk characterisation of pesticides that have chronic effects on the thyroid

European Food Safety Authority (EFSA),
Peter S Craig, Bruno Dujardin, Andy Hart, Antonio F Hernández-Jerez,
Susanne Hougaard Bennekou, Carsten Kneuer, Bernadette Ossendorp, Ragnor Pedersen,
Gerrit Wolterink and Luc Mohimont

Abstract

A retrospective chronic cumulative risk assessment of dietary exposure to pesticide residues, supported by an uncertainty analysis based on expert knowledge elicitation, was conducted for two effects on the thyroid, hypothyroidism and parafollicular cell (C-cell) hypertrophy, hyperplasia and neoplasia. The pesticides considered in this assessment were identified and characterised in the scientific report on the establishment of cumulative assessment groups of pesticides for their effects on the thyroid. Cumulative exposure assessments were conducted through probabilistic modelling by EFSA and the Dutch National Institute for Public Health and the Environment (RIVM) using two different software tools and reported separately. These exposure assessments used monitoring data collected by Member States under their official pesticide monitoring programmes in 2014, 2015 and 2016 and individual consumption data from 10 populations of consumers from different countries and different age groups. This report completes the characterisation of cumulative risk, taking account of the available data and the uncertainties involved. For each of the 10 populations, it is concluded with varying degrees of certainty that cumulative exposure to pesticides that have the chronic effects on the thyroid mentioned above does not exceed the threshold for regulatory consideration established by risk managers.

© 2020 European Food Safety Authority. *EFSA Journal* published by John Wiley and Sons Ltd on behalf of European Food Safety Authority.

Keywords: pesticide residues, thyroid, cumulative risk assessment, probabilistic modelling, expert knowledge elicitation

Requestor: EFSA

Question number: EFSA-Q-2018-00346

Correspondence: pesticides.mrl@efsa.europa.eu

SCIENTIFIC REPORT



ADOPTED: 20 March 2020

doi: 10.2903/j.efsa.2020.6087

Cumulative dietary risk characterisation of pesticides that have acute effects on the nervous system

European Food Safety Authority (EFSA),
Peter S Craig, Bruno Dujardin, Andy Hart, Antonio F Hernández-Jerez,
Susanne Hougaard Bennekou, Carsten Kneuer, Bernadette Ossendorp, Ragnor Pedersen,
Gerrit Wolterink and Luc Mohimont

Abstract

A retrospective acute cumulative risk assessment of dietary exposure to pesticide residues, supported by an uncertainty analysis based on expert knowledge elicitation, was conducted for two effects on the nervous system: brain and/or erythrocyte acetylcholinesterase inhibition, and functional alterations of the motor division. The pesticides considered in this assessment were identified and characterised in the scientific report on the establishment of cumulative assessment groups of pesticides for their effects on the nervous system. Cumulative exposure assessments were conducted through probabilistic modelling by EFSA and the Dutch National Institute for Public Health and the Environment (RIVM) using two different software tools and reported separately. These exposure assessments used monitoring data collected by Member States under their official pesticide monitoring programmes in 2014, 2015 and 2016 and individual consumption data from 10 populations of consumers from different countries and different age groups. This report completes the characterisation of cumulative risk, taking account of the available data and the uncertainties involved. For each of the 10 populations, it is concluded with varying degrees of certainty that cumulative exposure to pesticides that have the acute effects on the nervous system mentioned above does not exceed the threshold for regulatory consideration established by risk managers.

© 2020 European Food Safety Authority. *EFSA Journal* published by John Wiley and Sons Ltd on behalf of European Food Safety Authority.

Keywords: pesticide residues, nervous system, cumulative risk assessment, probabilistic modelling, expert knowledge elicitation

Requestor: EFSA

Question number: EFSA-Q-2018-00345

Correspondence: pesticides.MRL@efsa.europa.eu

- Retrospective
- Clearly defined protection goals for consumer populations
- Incomparable amount of data
- Probabilistic modelling
- Uncertainty analysis

- Cumulative assessment groups (CAGs) populated by pesticides causing a same phenomenological effect considered as relevant for cumulative risk assessment
- Pesticides included in a same CAG are assumed to combine their effects by dose-addition

Taking account of all uncertainties identified by experts, for the investigated effects, it was concluded that, with varying degrees of certainty, cumulative exposure does not reach the threshold for regulatory consideration for all the population groups considered.



Subscribe to

www.efsa.europa.eu/en/news/newsletters

www.efsa.europa.eu/en/rss



Engage with careers

www.efsa.europa.eu/en/engage/careers



Follow us on Twitter

@efsa_eu

@plants_efsa

@methods_efsa