



The EU Annual Pesticide Residues Report

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Pesticides – or plant protection products – are a reality of modern times. These chemicals must be strictly regulated to ensure their use does not harm human and animal health and the environment.

How do we do this?

The European Union has an authorisation procedure involving three partners: **EFSA**, the **European Commission** and **Member States**. Pesticide applications from **industry** pass along a chain formed of these three parties – with each one carrying out specific tasks. **EFSA's role** is to carry out risk assessments of pesticides and to provide the European Commission and Member States with scientific support in the decision-making process.

Assessment of active substances under Regulation (EU) No 1107/2009:

Full assessment for representative use

- Phys-chem properties
- Analytical methods
- Toxicological properties
- Residue behaviour
- Fate and behaviour in the environment
- Ecotoxicology

Authorisation of plant protection products at national level

Detailed assessment of intended uses

- Define Good Agricultural Practices (GAP)

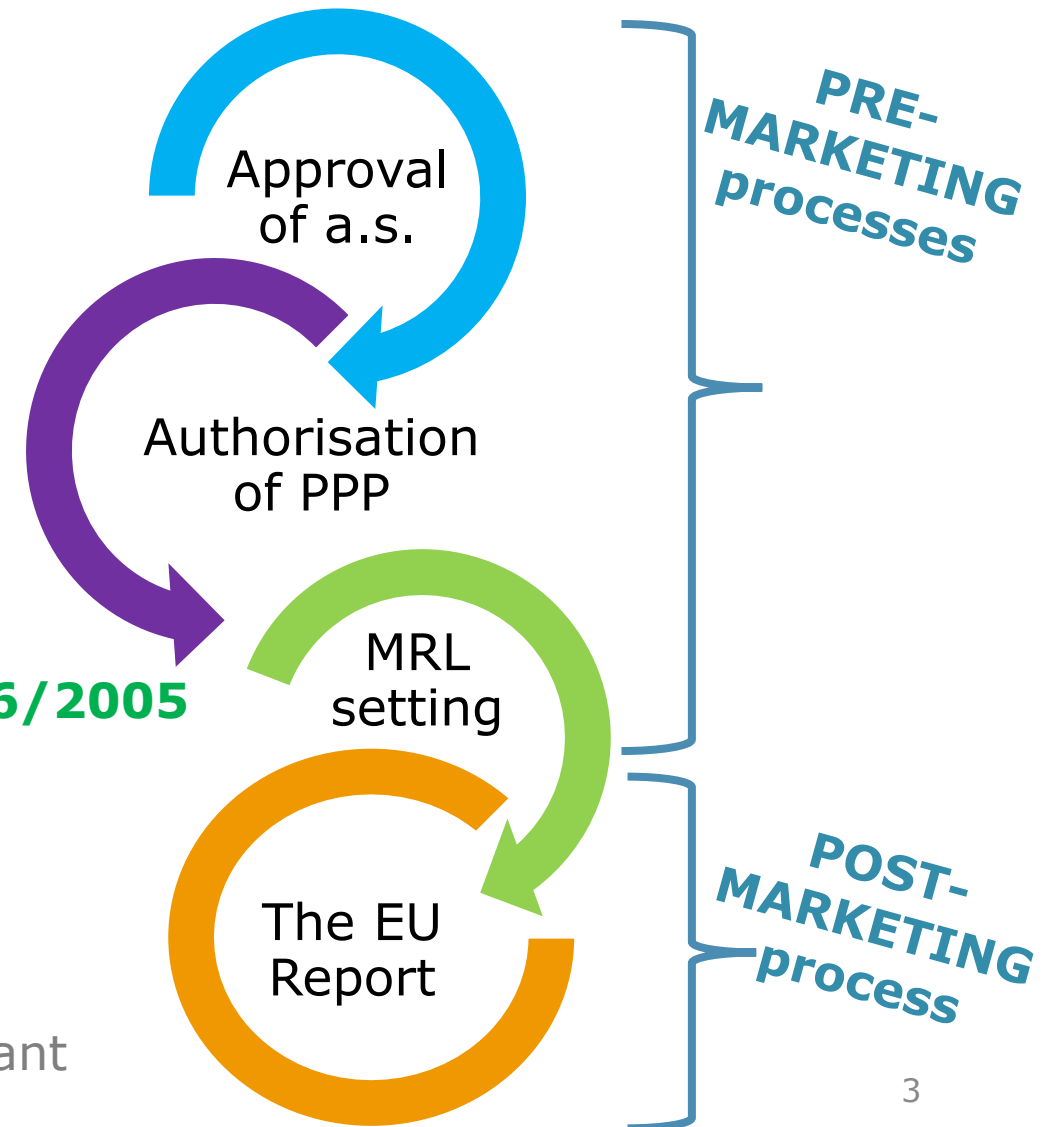
Amendment EU MRLs under Regulation (EC) No 396/2005

If existing MRLs are not sufficient to cover new uses

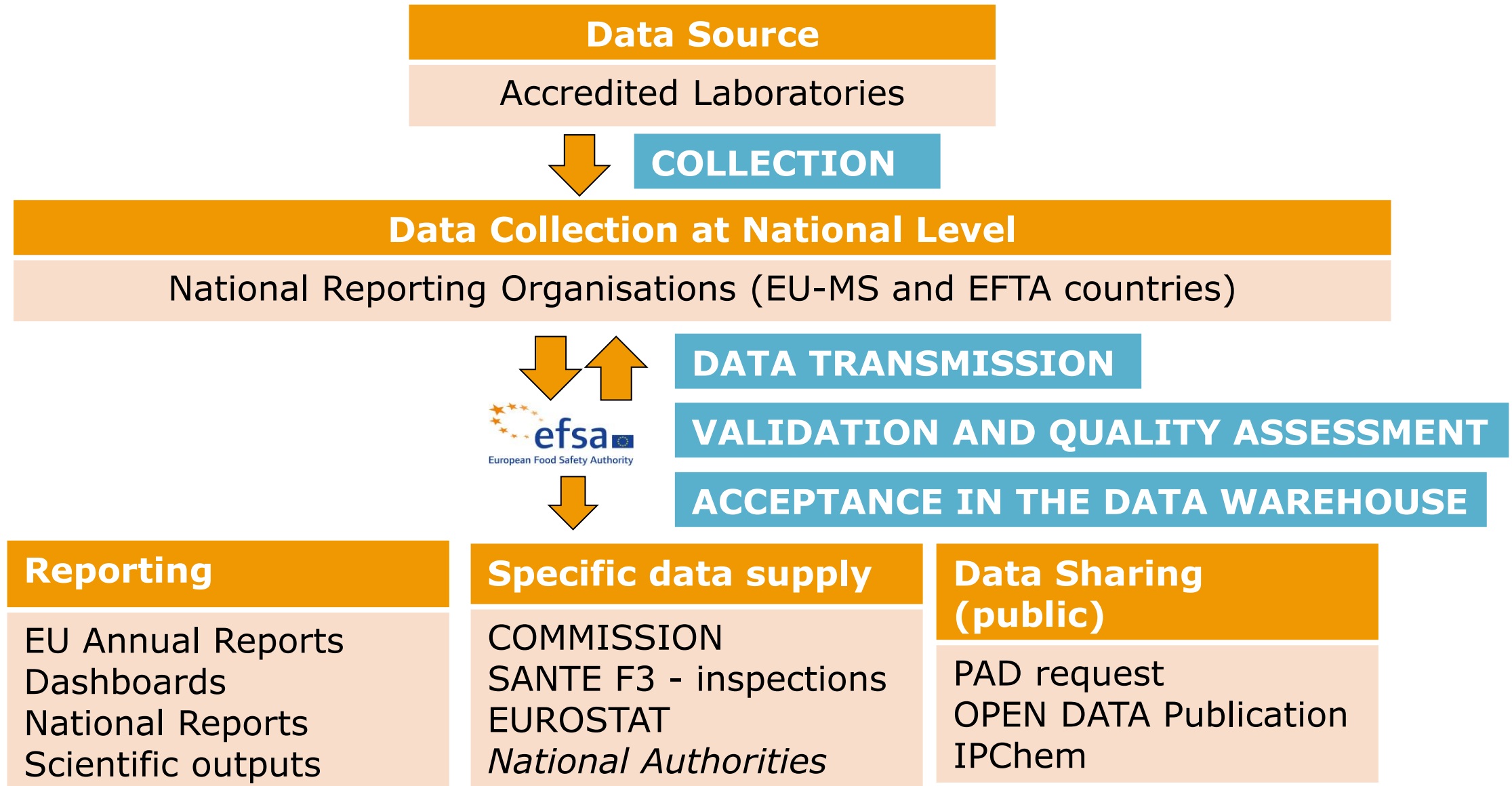
- Assessment of MRL application

Preparation of EU Monitoring report under Art.32 Regulation (EC) No 396/2005

- EU and national programmes
- Identification of MRL exceedances and non-compliant
- Exposure to EU consumers to pesticide residues



Data transmission process



EU coordinated monitoring programme (EUCP)

- EU Regulation defines
 - Type of products to be analysed
 - Pesticides to be analysed
 - Number of samples
 - Random samples to be taken

ST10A – Objective sampling

National monitoring programmes

- Member States decide
 - Type of products to be analysed
 - Pesticides to be analysed
 - Number of samples
 - Sampling strategy is risk based
 - Any other parameter to focus the programme on certain aspects

ST20A- Targeted sampling

Import controls

- EU Regulation
 - Type of products to be analysed
 - Pesticides to be analysed
 - Frequency of samples
 - Country

ST30A- Suspect sampling

Sampling strategy – pesticide domain

Sampling strategy	Definition	Note/examples
Objective sampling ST10A	Strategy based on the selection of a random sample from a population on which the data are reported. Random sample is a sample which is taken under statistical consideration to provide representative data.	Typical random sampling from monitoring programmes (e.g. for the EU-coordinated pesticides monitoring programme).
Selective/Targeted sampling ST20A	Strategy based on the selection of a random sample from a subpopulation of a population on which the data are reported. The subpopulations are determined on a risk basis . The sampling from each subpopulation is not proportional : the sample size is proportionally bigger for instance in subpopulations considered at high risk.	Is random sampling, but the sampling is focused on food where the chemical (e.g. contaminant) is expected (for example for mycotoxins is sampled grain instead of meat). These samples are taken with the aim of detecting illegal use or non-compliance.
Suspect sampling ST30A	Selection of an individual product or establishment to confirm or reject a suspicion of non-conformity. It's not random sampling . The data reported refer themselves to suspect units of the population.	As the reason of foodborne illness outbreaks in industry/restaurant. Also, in case routine controls when 1 st sample is not conforming, all samples of this selection are considered 'suspected'. For risk-based sampling, e.g. to enforce provisions of Regulation (EU) No 2019/1793 on the temporary increase of official controls and emergency measures governing the entry into the Union of certain goods from certain third countries.

The EU report on pesticide residues



Description of the EU-coordinated programme

L 94/12

EN

Official Journal of the European Union

7.4.2017

COMMISSION IMPLEMENTING REGULATION (EU) 2017/660

of 6 April 2017

concerning a coordinated multiannual control programme of the Union for 2018, 2019 and 2020 to ensure compliance with maximum residue levels of pesticides and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin

L 92/6

EN

Official Journal of the European Union

10.4.2018

COMMISSION IMPLEMENTING REGULATION (EU) 2018/555

of 9 April 2018

concerning a coordinated multiannual control programme of the Union for 2019, 2020 and 2021 to ensure compliance with maximum residue levels of pesticides and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin

L 88/28

EN

Official Journal of the European Union

29.3.2019

COMMISSION IMPLEMENTING REGULATION (EU) 2019/533

of 28 March 2019

concerning a coordinated multiannual control programme of the Union for 2020, 2021 and 2022 to ensure compliance with maximum residue levels of pesticides and to assess the consumer exposure to pesticide residues in and on food of plant and animal origin

https://ec.europa.eu/food/plant/pesticides/max_residue_levels/enforcement/eu_multi-annual_control_programme_en

Description of the EU-coordinated programme

- It is a Regulation updated every year.
- It concerns a coordinated multiannual control programme for **three** calendar **years**.
- It requests randomly sampling procedures as lay down in Commission Directive 2002/63/EC incorporating sampling methods and procedures recommended by the Codex Alimentarius Commission.

Description of the EU-coordinated programme

- Includes the **pesticide/crop combinations** to be analysed by official laboratories in the EU Member States.
- Provisions on **organic food** to be sampled are given.
- Indications on the number and the type of **baby food** to be sampled are also provided.
- The use of the **Standard Sample Description (SSD)** to report results in a harmonised way to EFSA, is requested.

Description of the EU-coordinated programme

L 88/32

EN

Official Journal of the European Union

29.3.2019

Part C: Pesticide/product combinations to be monitored in/on products of plant origin

	2020	2021	2022	Remarks
2,4-D	(a)	(b)	(c)	It shall only be analysed in and on oranges, cauliflowers, brown rice and dried beans in 2020; in and on grapefruits, table grapes, aubergines and broccoli in 2021; in and on lettuces, spinaches and tomatoes in 2022.
2-Phenylphenol	(a)	(b)	(c)	
Abamectin	(a)	(b)	(c)	
Acephate	(a)	(b)	(c)	
Acetamiprid	(a)	(b)	(c)	
Acrinathrin	(a)	(b)	(c)	
Aldicarb	(a)	(b)	(c)	
Aldrin and dieldrin	(a)	(b)	(c)	
Ametoctradin	(a)	(b)	(c)	
Azinphos-methyl	(a)	(b)	(c)	
Azoxystrobin	(a)	(b)	(c)	
Bifenthrin	(a)	(b)	(c)	
Biphenyl	(a)	(b)	(c)	
Bitertanol	(a)	(b)	(c)	
Boscalid	(a)	(b)	(c)	
Bromide ion	(a)	(b)	(c)	It shall only be analysed in and on brown rice in 2020; in and on sweet peppers in 2021; in and on lettuces and tomatoes in 2022.

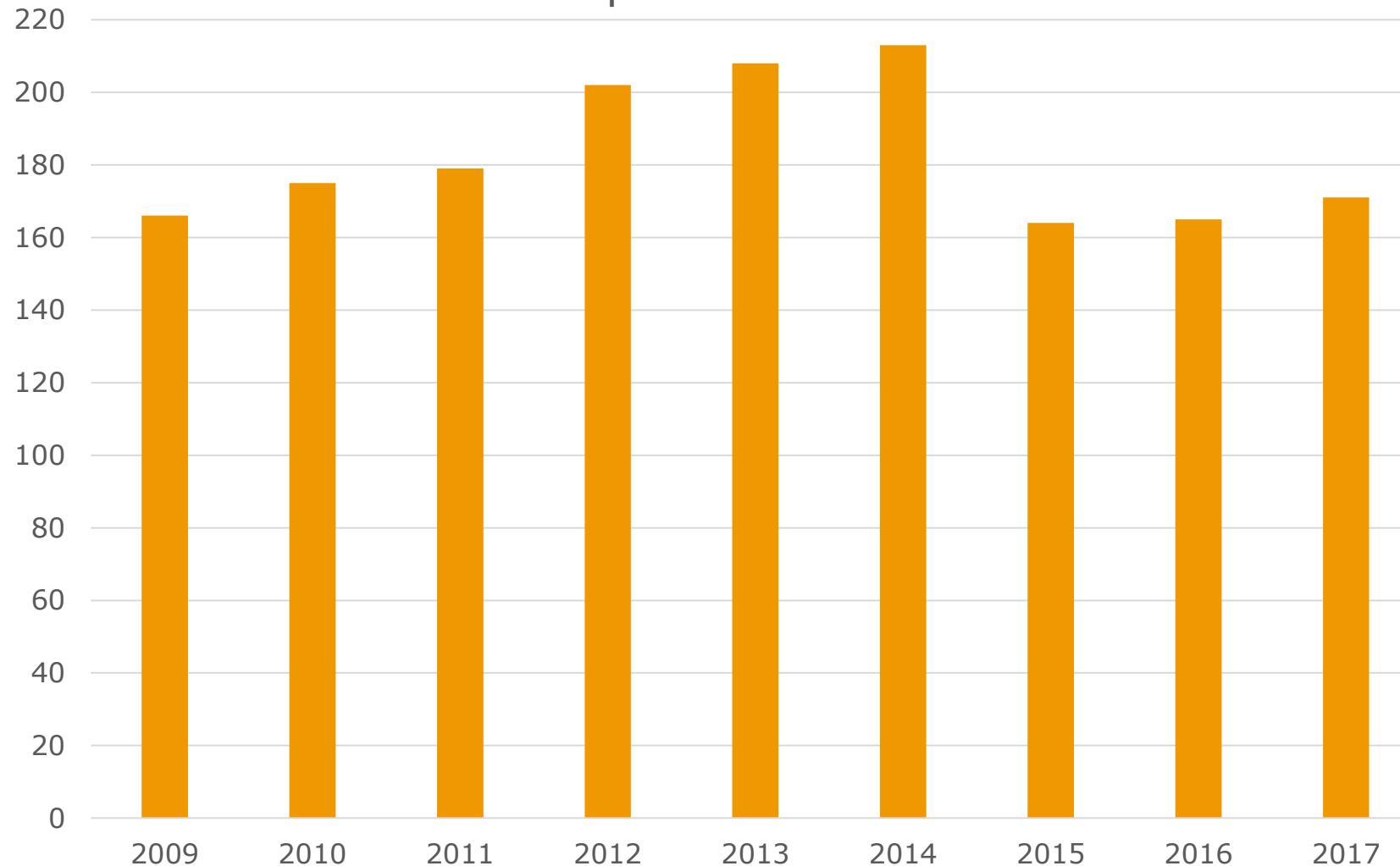
Part D: Pesticide/product combinations to be monitored in/on products of animal origin

	2020	2021	2022	Remarks
Aldrin and dieldrin	(f)	(d)	(e)	
Bifenthrin	(f)	(d)	(e)	
Chlordane	(f)	(d)	(e)	
Chlorpyrifos	(f)	(d)	(e)	
Chlorpyrifos-methyl	(f)	(d)	(e)	
Cypermethrin	(f)	(d)	(e)	
DDT	(f)	(d)	(e)	
Deltamethrin	(f)	(d)	(e)	
Diazinon	(f)	(d)	(e)	
Endosulfan	(f)	(d)	(e)	
Famoxadone	(f)	(d)	(e)	
Fenvalerate	(f)	(d)	(e)	

- Gives the pesticides to be included in the scope of analysis.

Description of the EU-coordinated programme

Number of pesticides in the EUCP



- Pesticides placed on working document prior to be included in the EU-coordinated programme.

Description of the EU-coordinated programme

29.3.2019

EN

Official Journal of the European Union

L 88/31

ANNEX I

Part A: Products of plant origin ⁽¹⁾ to be sampled in 2020, 2021 and 2022.

2020	2021	2022
(a)	(b)	(c)
Oranges ⁽²⁾	Table grapes ⁽²⁾	Apples ⁽²⁾
Pears ⁽²⁾	Bananas ⁽²⁾	Strawberries ⁽²⁾
Kiwi fruits ⁽²⁾	Grapefruits ⁽²⁾	Peaches, including nectarines and similar hybrids ⁽²⁾
Cauliflowers ⁽²⁾	Aubergines ⁽²⁾	Wine (red or white) made from grapes. (If no specific processing factors for wine are available, Member States are requested to report the wine processing factors used in the 'National Summary report')
Onions ⁽²⁾	Broccoli ⁽²⁾	Lettuces ⁽²⁾
Carrots ⁽²⁾	Melons ⁽²⁾	Head cabbages ⁽²⁾
Potatoes ⁽²⁾	Cultivated fungi ⁽²⁾	Tomatoes ⁽²⁾
Beans (dried) ⁽²⁾	Sweet peppers/bell peppers ⁽²⁾	Spinaches ⁽²⁾
Rye grain ⁽²⁾	Wheat grain ⁽²⁾	Oat grain ⁽²⁾ ⁽⁴⁾
Brown rice (husked rice), defined as rice after the removal of the hull from paddy rice ⁽²⁾	Virgin olive oil (If no specific oil processing factor is available, Member States are requested to report the processing factors used in the 'National Summary report')	Barley grain ⁽²⁾ ⁽⁴⁾

Part B: Products of animal origin ⁽¹⁾ to be sampled in 2020, 2021 and 2022.

2020	2021	2022
(f)	(d)	(e)
Poultry fat ⁽²⁾ ⁽⁷⁾	Bovine fat ⁽²⁾ ⁽⁷⁾	Cow's milk ⁽²⁾
Bovine Liver ⁽²⁾	Chicken eggs ⁽²⁾ ⁽⁹⁾	Swine fat ⁽²⁾ ⁽⁷⁾

- Gives the product of plant and animal origin to be sampled.
- Most of the products are unprocessed (raw agricultural commodities).
- There are two processed products: wine from grapes and virgin olive oil.
- In the case of wheat, oat, barley or rye also whole grain flour can be sampled.

Description of the EU-coordinated programme



Description of the EU-coordinated programme

(5) Minimum number of samples per Member State per commodity:

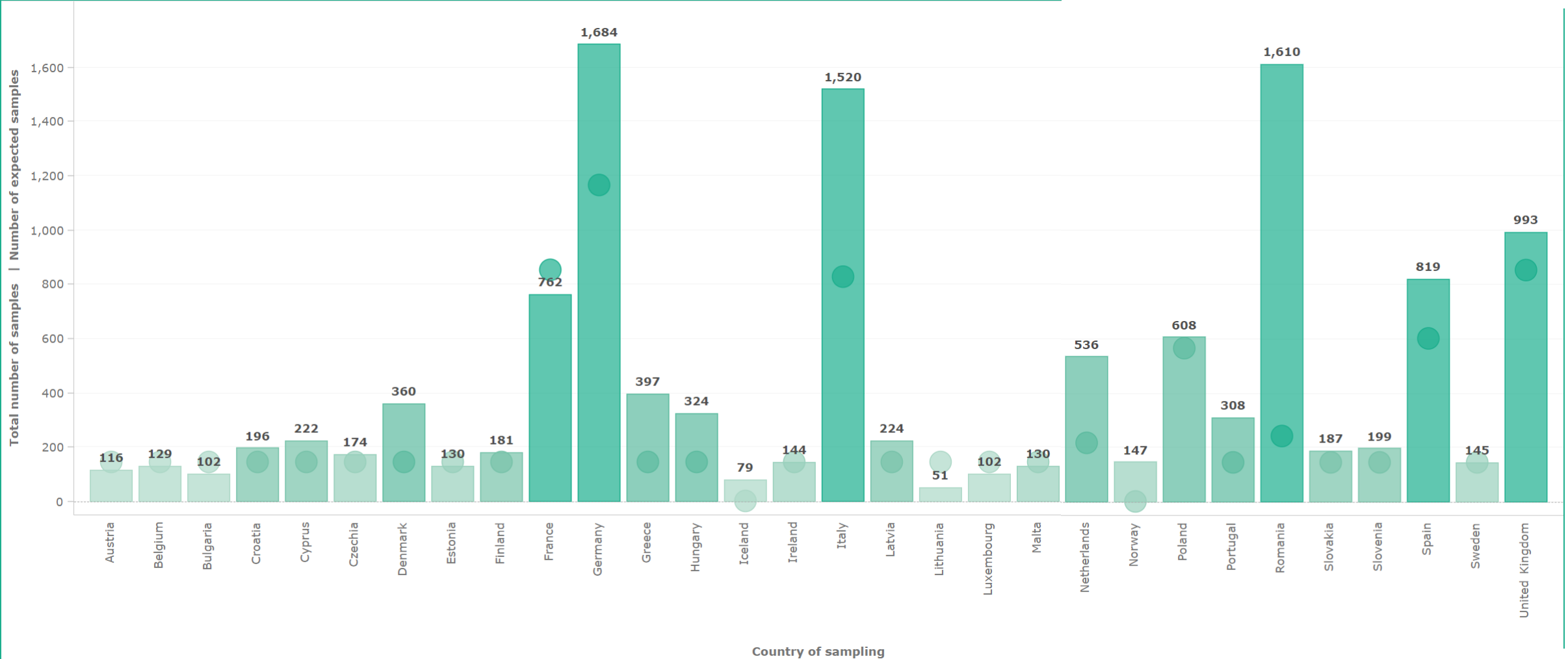
Member State	Samples	Member State	Samples
BE	12	LU	12
BG	12	HU	12
CZ	12	MT	12
DK	12	NL	18
DE	97	AT	12
EE	12	PL	47
EL	12	PT	12
ES	50	RO	20
FR	71	SI	12
IE	12	SK	12
IT	69	FI	12
CY	12	SE	12
LV	12	UK	71
LT	12	HR	12

TOTAL NUMBER OF SAMPLES: 683

- Gives the minimum number of samples to be taken by commodity and Member State based on its population.
- Gives the minimum number of samples (683) to be monitored for 32 different food items (with a minimum of 12 samples per product and per year), with a margin of error of 0.75% to achieve a **1% of MRL exceedances**.

Description of the EU-coordinated programme

Number of samples taken under the EUCP by reporting country



How can we use pesticide monitoring data?

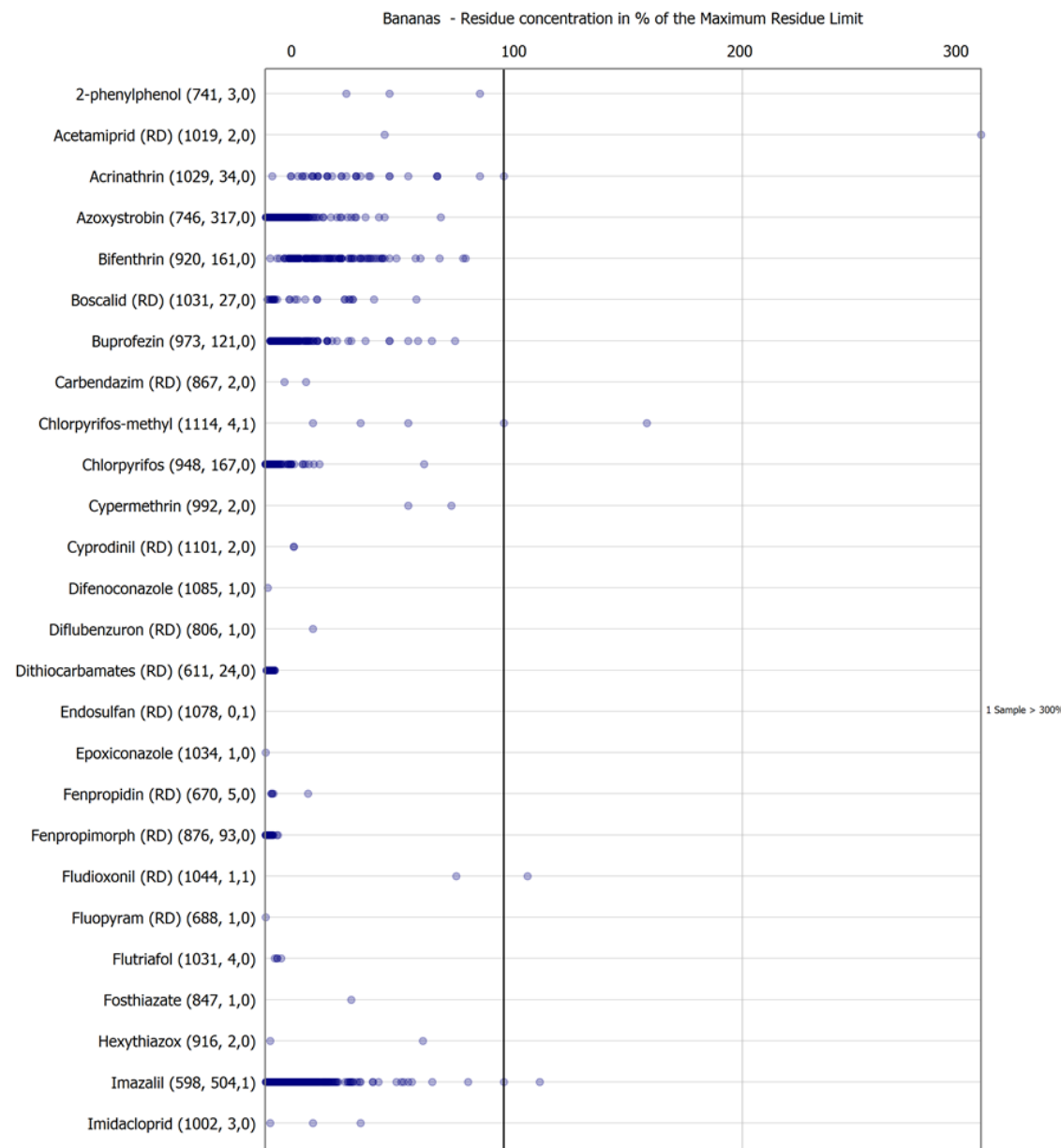
- MRL compliance
- Identify misuse of pesticides
- Setting of MRLs on basis of monitoring data
- Identify unexpected contaminations
- Estimating consumer exposure to pesticide residues and related public health concerns
- Identify possibilities to strengthen the food control systems
- Do risk mitigation measures show the effect expected by risk managers?

MRL compliance check, identify possible misuse

Follow-up for non-compliant samples



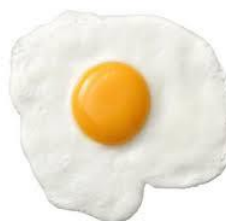
- Investigate the reasons for exceedances
 - Farmers did not respect GAP;
- Farmers used pesticides containing active substances that are not approved for the crop;
- Use of pesticides containing a.s. not approved in the country of production;
- MRL was set at a level that is inappropriate;
- Any other reasons for non-compliance?



Setting MRLs on the basis of monitoring data

Examples:

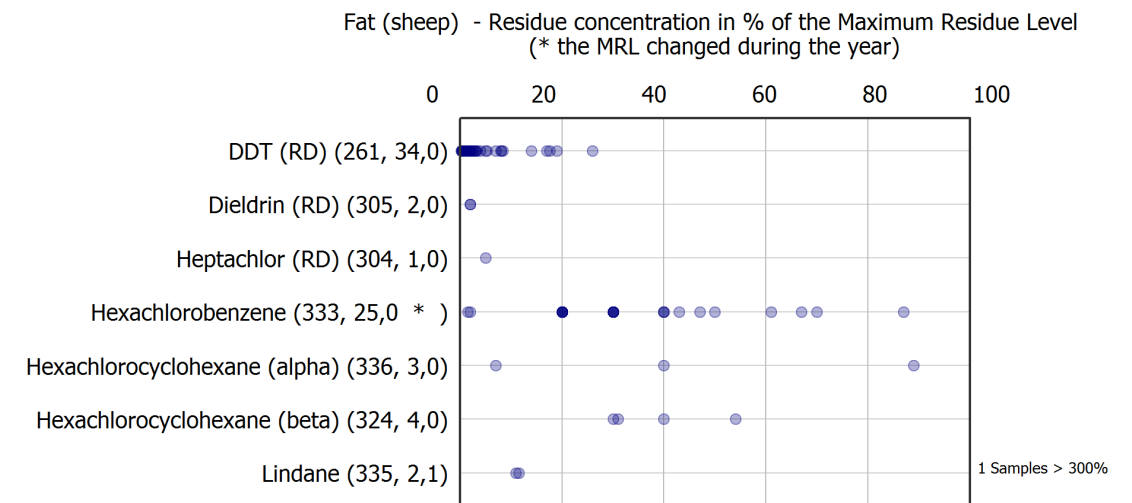
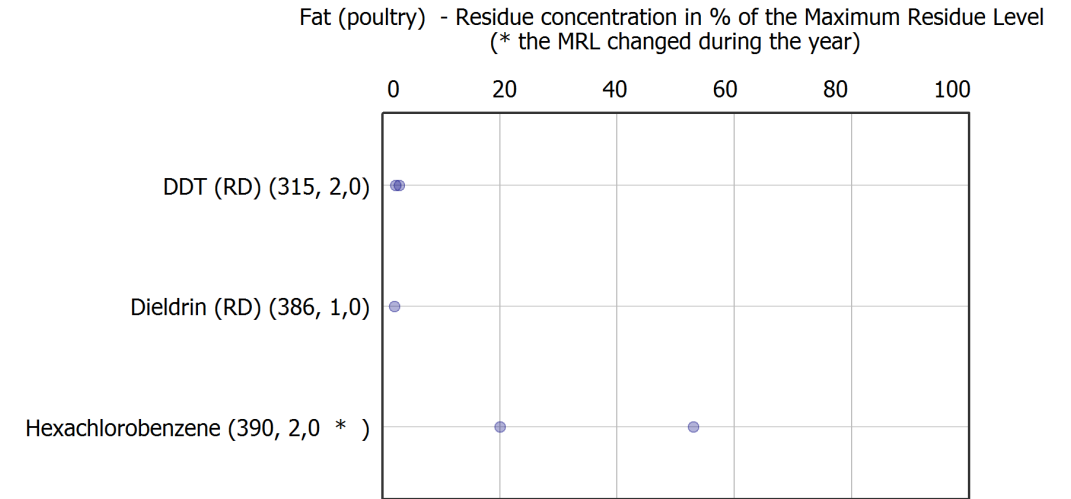
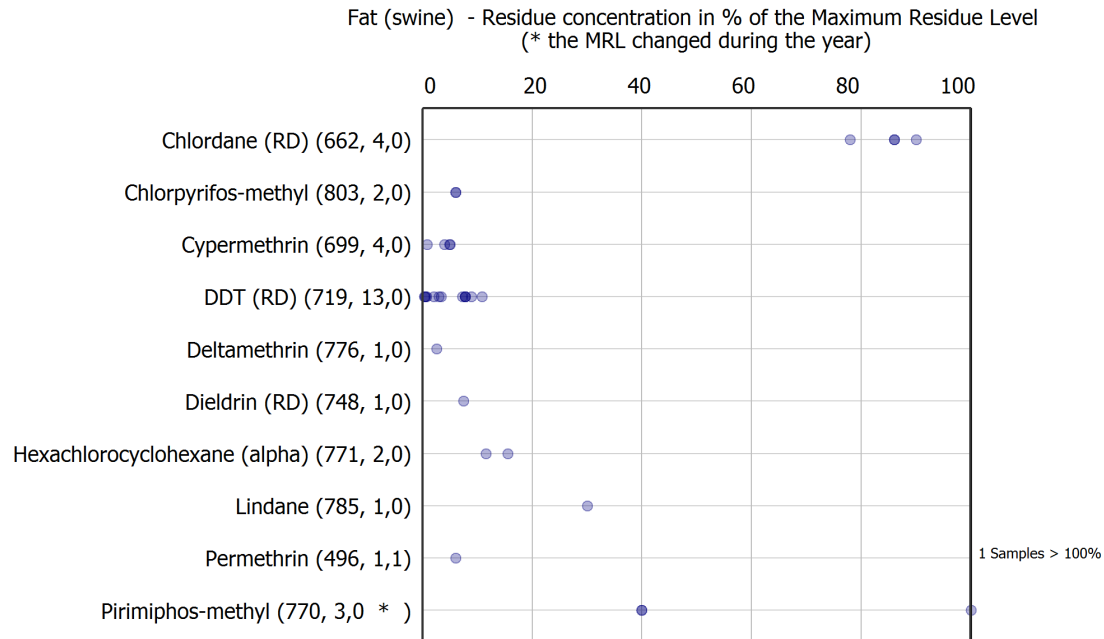
- Oyster mushrooms cultivated on straw contaminated with chlormequat
- Chlormequat in pears: residues still present although use stopped several years ago
- DDT residues in eggs



Periodic review of the temporary MRLs is required.

Setting MRLs on the basis of monitoring data

Fat – different years, different species



Persistent pesticides in animal product are being detected. These findings are used to set ^tMRLs. This makes it necessary to keep controlling animal products and consider lowering them.

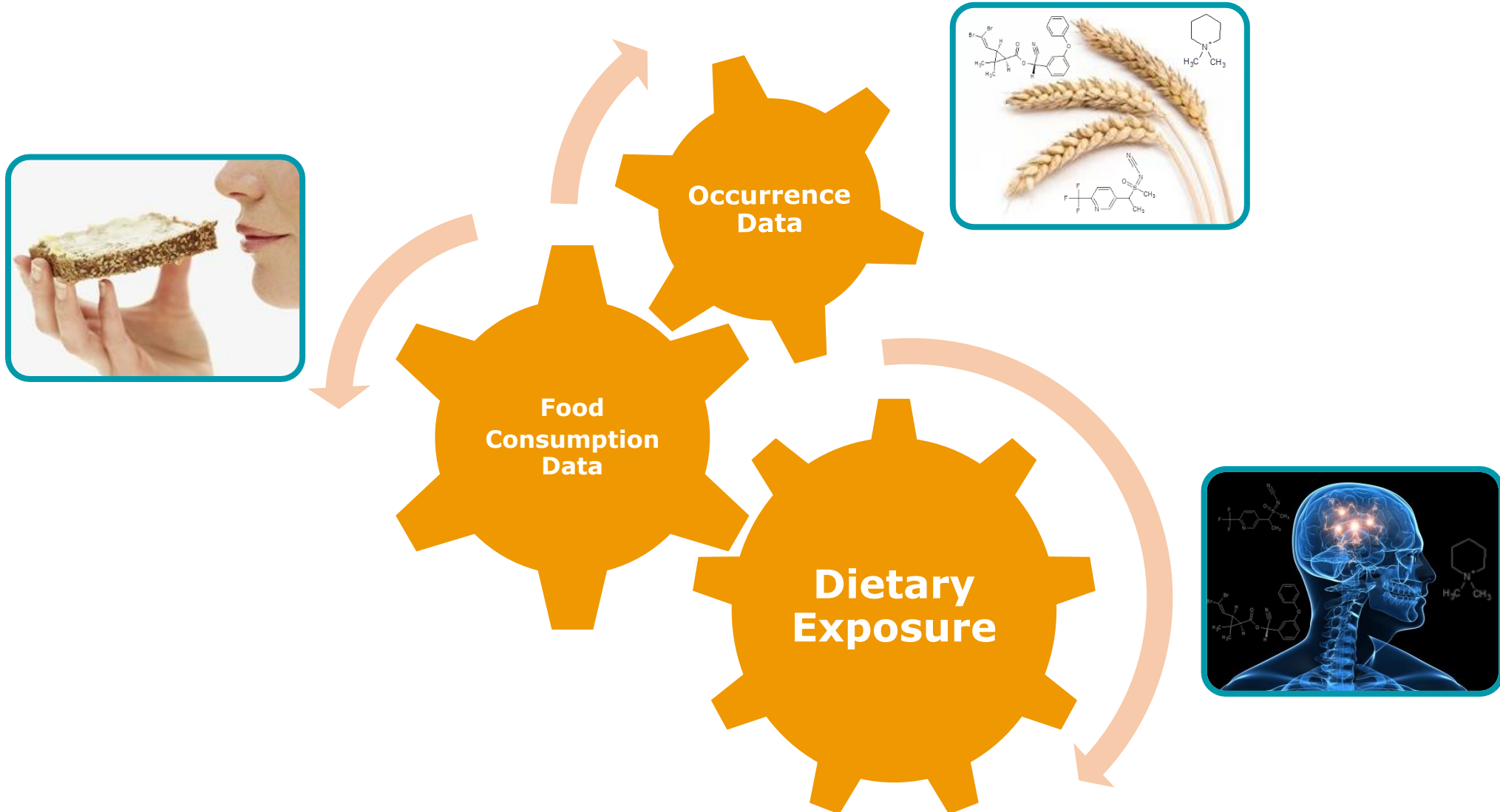
Identify unexpected contaminations

Examples:

- Nicotine residues in wild mushrooms: source of residues unknown, probably naturally occurring.
- Fipronil in eggs and poultry products, resulting from misuse of veterinary medicinal products for stable disinfection.
- DDAC/BAC (quaternary ammonium compounds used as biocides) in a wide range of processed products
- Isofenphos-methyl residues in Spanish peppers



Dietary exposure assessment



The EFSA Comprehensive European food consumption database contains data:

- 24-hour recall or dietary record method
- data collected at individual level
- most recent data within each country
- random sample at national level
- different age classes, from infants to elderly
- special population groups

Data collection and analysis

- Food consumption
- Comprehensive database**
- Food composition
- Biological hazards
- Chemical hazards
- Chemical contaminants
- Chemical residues
- Compendium of Botanicals
- Standardisation
- Methodology

The EFSA Comprehensive European Food Consumption Database

The Comprehensive Food Consumption Database is a source of information on food consumption across the European Union (EU). It contains detailed data for a number of EU countries.

The database plays a key role in the evaluation of the risks related to possible hazards in food in the EU and allows estimates of consumers' exposure to such hazards, a fundamental step in EFSA's risk assessment work.

The database is also relevant to other fields of EFSA's work, such as the assessment of nutrient intakes of the EU population.

- [Guidance for the use of the EFSA Comprehensive European Food Consumption Database](#)

EFSA uses the food classification system [FoodEx2](#) to categorise foods and beverages included in the database.

Summary statistics from the database enable quick screening for chronic and acute exposure to substances and organisms that may be found in the food chain. In the database, dietary surveys and food consumption data for each country are divided by category. These include: age, from infants to adults aged 75 years or older; food group (over 2,500) and type of consumption, covering both regular and high consumption, thus allowing calculations to be tailored to each category of consumer.

These food consumption statistics are stored and presented in the EFSA Data Warehouse via the following links:

- [Survey Details](#)

Chronic and acute food consumption statistics

Statistics on chronic and acute food consumption are available for:

- the total population ("all subjects" and "all days") or consumers only, and
- in grams per day (g/day) or grams per day per kilogram of body weight (g/kg bw per day).

[Global Environment Monitoring System \(GEMS\) / Food Contamination Monitoring and Assessment Programme \(who.int\)](#)

<https://www.efsa.europa.eu/en/data-report/food-consumption-data>

Acute consumer exposure

IESTI calculation

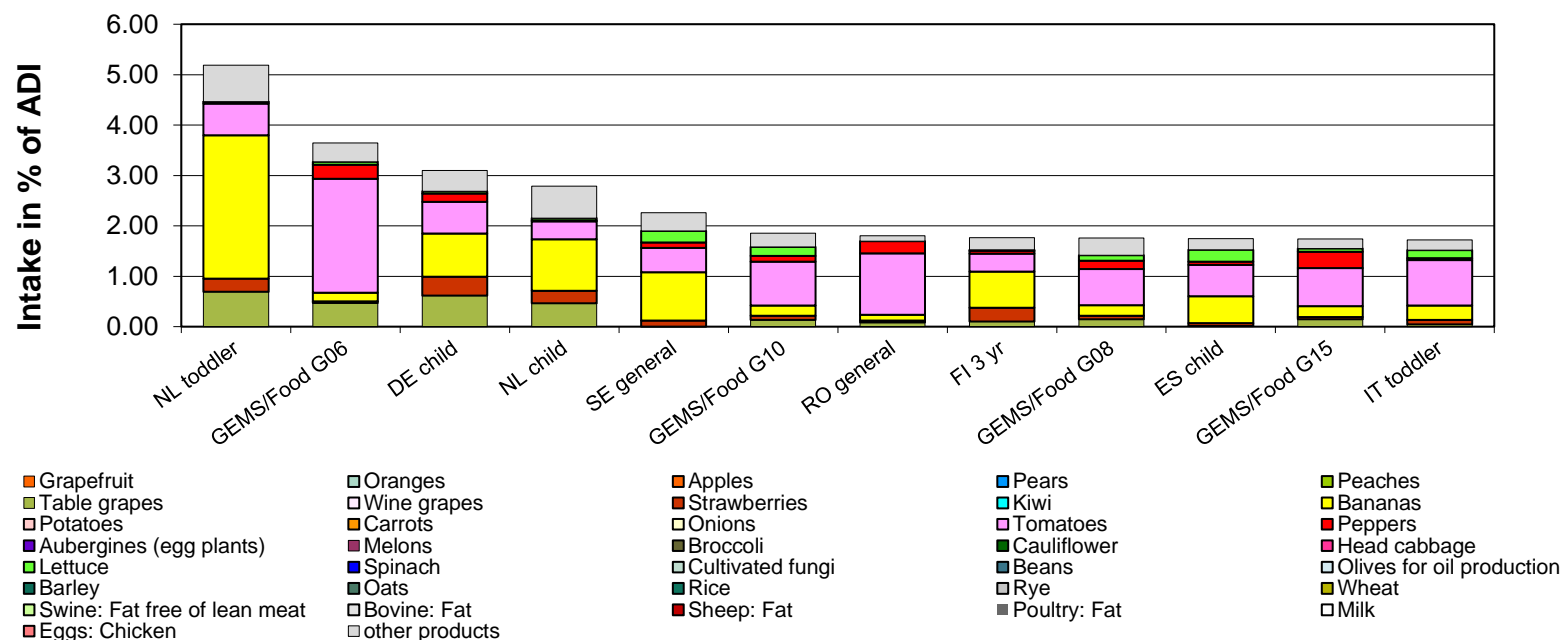
Active substance	Abamectin (RD)
ARfD:	0.0012
ADI:	0.0025

level	Code no. (1)	Examples of individual products within the groups to which the MRLs apply	monitoring year	PF	Large portion (expressed as g/kg bw)	Percentile	MS critical diet	Body weight (kg)	Large portion (edible portion) (g/person)	Unit weight, edible portion (g)	Source unit weight, edible portion	Unit weight RAC (g)	Source unit weight RAC	Case	Variability factor for IESTI	IESTI mg/kg bw/day	IESTI in % ARfD (alternative ly % ADI)	threshold calculation IESTI 1 ARfD > 0
4	130010	Apples	2019	1	20.53	97.5	NL toddler	10.20	209.40	148.33	NL	163.00	NL	2a	7			
4	140030	Peaches	2019	1	18.00	100	NL toddler	10.20	183.60	130.95	NL	135.00	NL	2a	7			
4	151020	Wine grapes	2019	1	9.28	97.5	UK 7-10 years	30.90	286.69	<25	UK	<25	UK	1	1			
3	152000	Strawberries	2019	1	16.34	97.5	NL toddler	10.20	166.70	<25	NL	<25	NL	1	1	0.0014	113.0%	0.07
4	231010	Tomatoes	2019	1	10.11	97.5	BE toddlers	17.80	180.00	142.50	BE	150.00	BE	2a	7	0.0007	58.1%	0.02
4	242020	Head cabbage	2019	1	8.85	97.5	BE toddlers	17.80	157.50	1402.50	BE	1650.00	BE	2b	5			
4	251020	Lettuce	2019	1	7.61	97.5	NL child	18.40	140.10	289.92	NL	302.00	NL	2b	5	0.0031	260.1%	0.03
4	252010	Spinach	2019	1	22.60	97.5	BE toddlers	17.80	402.30	<25	NL	<25	NL	1	1			
4	500010	Barley	2019	1	5.61	97.5	UK 7-10 years	30.90	173.40	<25	NL	<25	NL	3	1			
4	500050	Oats	2019	1	1.11	97.5	DE child	16.15	17.93	<25	NL	<25	NL	3	1			
4	1011020	Swine: Fat free of lean meat	2019	1	1.70	90	FR 11-14 years	46.30	78.71					1	1			
4	1020010	Milk (cattle)	2019	1	124.22	97.5	UK infant	8.70	1080.70					3	1			

- Express exposure as % of ARfD
- Where possible, take into account processing/ peeling factors
- Sampling strategy?
- Residue definition for risk assessment is different?
- Which toxicological reference value should be used?
- Use results of acute exposure assessment to decide on risk management actions (e.g. RASFF)

Chronic consumer exposure to individual pesticide

- Express exposure as % of ADI
- What to do with residues at LOQ?
 - Upper bound/lower bound
- Where possible, take into account processing/peeling factors
- Residue definition for risk assessment is different?
- Which toxicological reference value should be used?





English 

Search

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Plants

PESTICIDES

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[Authorisation of Plant Protection Products](#)

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[EU legislation on MRLs](#)

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ALL TOPICS

Enforcement

Farmers, traders and importers must comply with MRLs because they are responsible for food safety.

National authorities in the EU control and enforce MRLs by taking samples and checking pesticides levels.

The Commission ensures that this is done properly and uniformly through:

- **EU multi-annual control programme** - shows the main pesticide-crop combinations to monitor and the minimum number of samples for each EU country in an **annual report** .
- **Sampling methods** - Directive on Community methods of sampling for the official control of pesticide residues in and on products of plant and animal origin.
- **EU Reference Laboratories** - train staff, develop common analysis methods, evaluate national control laboratories.
- **Health and Food audits and analysis Office** - makes inspections in EU countries and audits their controls.
- The **Rapid Alert System for Food and Feed** alerts countries when pesticide residues are at a worrying level for consumers so that they can take measures.
- **Member States competent authorities – contact points**  

QUICK LINKS



[GMO register](#)



[EU Pesticides database](#)



[Procedure to apply for authorisation of a PPP](#)



[Plant variety database](#)



[Community Plant Variety Office \(CPVO\)](#)



[Health and food audits and analysis](#)



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