

# Good implementation practices for Articles 28 and 29 of Regulation (EU) 2018/848

**Handles, keys and levers for investigation of residue cases  
in EU organic production**

Open discussion on the concept and the content

Brussels, 25 and 26 January 2024

Introduction

## **Chapter 1: The most common contaminants found in organic production**

Chapter 2: Laboratory analysis: the main tool for detection of contamination

Chapter 3: Potential sources and causes of contamination

Chapter 4: The toolbox for investigation methods and techniques

Chapter 5: Systematic approach for official investigations

Chapter 6: The role of the different actors in the investigation.

6.1: Assessments conducted by the operator (Art. 28)

6.2: Investigations conducted by the control bodies (Art. 29)

6.3: Investigations conducted by the competent authorities (Art. 29)

6.4: Information exchange including cross-border communication (OFIS)

Chapter 7: Decision making

Conclusion

## Coordinators/ Contributors

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- Rodolphe Vidal, ITAB – French research institute for organic food and farming, Organic Food Qualities and Processing

The most common contaminants found in food and organic products

- 1. Classification for food products**
- 2. Overview of contamination in food**
- 3. Focus on residues found in organic products**

### **Food can be classified according to different criteria:**

- **Classification according to legal framework**
- **Categorisation according to the degree of processing**  
→ from low processed to high complex processed
- **Relevance in relation to economy (e.j. major crop – minor crop); or in relation to the diet (e.j. basic foodstuff)**
- **Duration of shelf life ( perishable vs storable)**
- **.....**

**According to EU Reg 2018/848 organic food products are defined as**

**a) Agricultural products**

- **unprocessed products** means foodstuffs that have not undergone processing, and includes products that have been divided, parted, severed, sliced, boned, minced, skinned, ground, cut, cleaned, trimmed, husked, milled, chilled, frozen, deep-frozen or thawed;
- **processed agricultural products. Processing** means any action that substantially alters the initial product, including heating, smoking, curing, maturing, drying, marinating, extraction, extrusion or a combination of those processes



Fully in line with regulations 852/2004 hygiene for foodstuffs but can cause misinterpretation for 396/2005 MRL regulation

Processing step	Examples	Products – not comprehensive list
unprocessed plants and plant products	Fresh products	edible vegetables and certain roots and tubers edible fruits and nuts, peel of citrus fruit or melons
processed plants and plant products	Processes like heating, smoking, curing, maturing, drying, marinating, extraction, extrusion	cereals legume dried fruits, nuts coffee, tea, herbs & spices
Composite products	A mixture of different products and ingredients	Preparation of vegetable, fruit, nuts, cereals, flour

**MRL (maximum residue limit) set a legal threshold and are defined by EU regulation n°396/2005 for raw products.**

**Annex 6 should list Processing Factors but is still empty**



### Overview of residue found in food at EU level

Efsa reports annually for the EU Multi-annual Control programme (EU-MACP) and Multiannual National Control Programmes (risk-based control plan)

<https://multimedia.efsa.europa.eu/pesticides-report-2021/>

In 2021 (report 2023): 13 845 samples were taken among MS, Iceland and Norway for EU-MACP

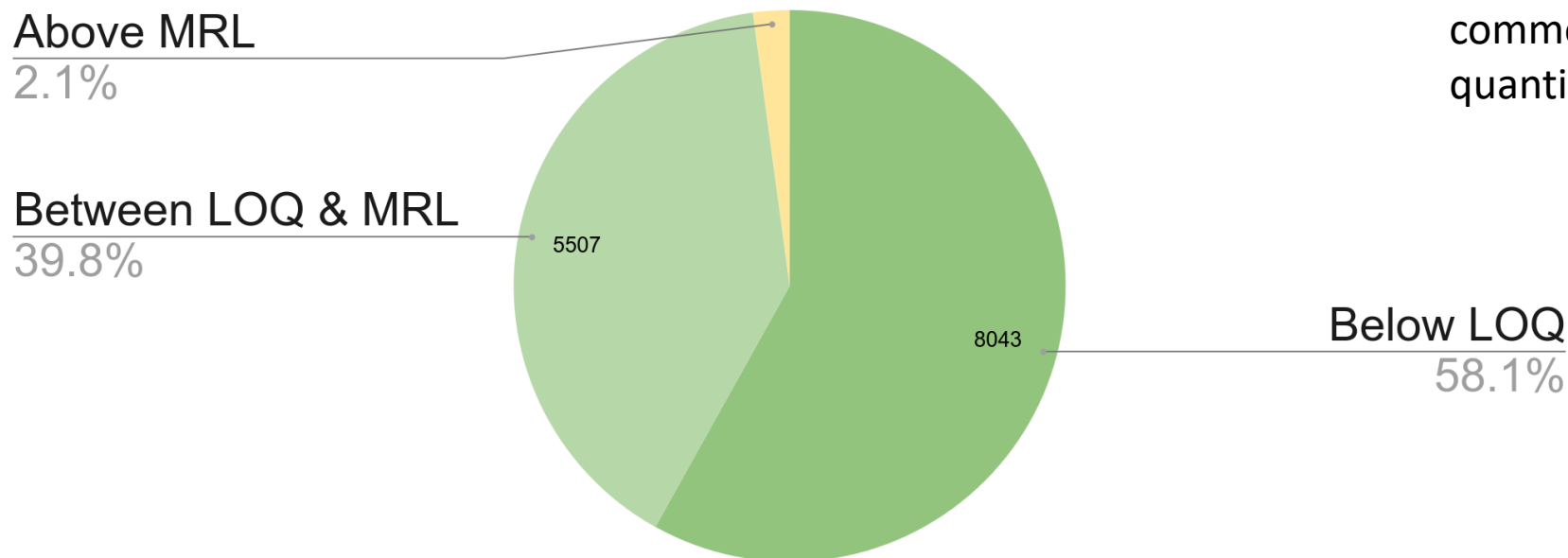
#### Product origins :

- 53.3% of the samples analysed were domestic, (100% for Lithuania)
- 22.8% were from other EU countries,
- 19.6% from third countries, (Romania (47.6%), Iceland (43.5%), Austria (37%) and Ireland (35.6%))
- 4.3% were of unknown origin (reach 27.5% in the netherland and 11.7% for Germany)



### Overview of residue found in food at EU level

Residue findings in food EU-MACP (Efsa 2023)  
n=13845 samples



41.9% of analyzed food commodities contained quantifiable residue(s)

Total no. of samples	Below LOQ	Between LOQ & MRL	Above MRL	Non-compliant
<b>13,845</b>	<b>8,043</b> (58.1%)	<b>5,507</b> (39.8%)	<b>295</b> (2.1%)	<b>184</b> (1.3%)

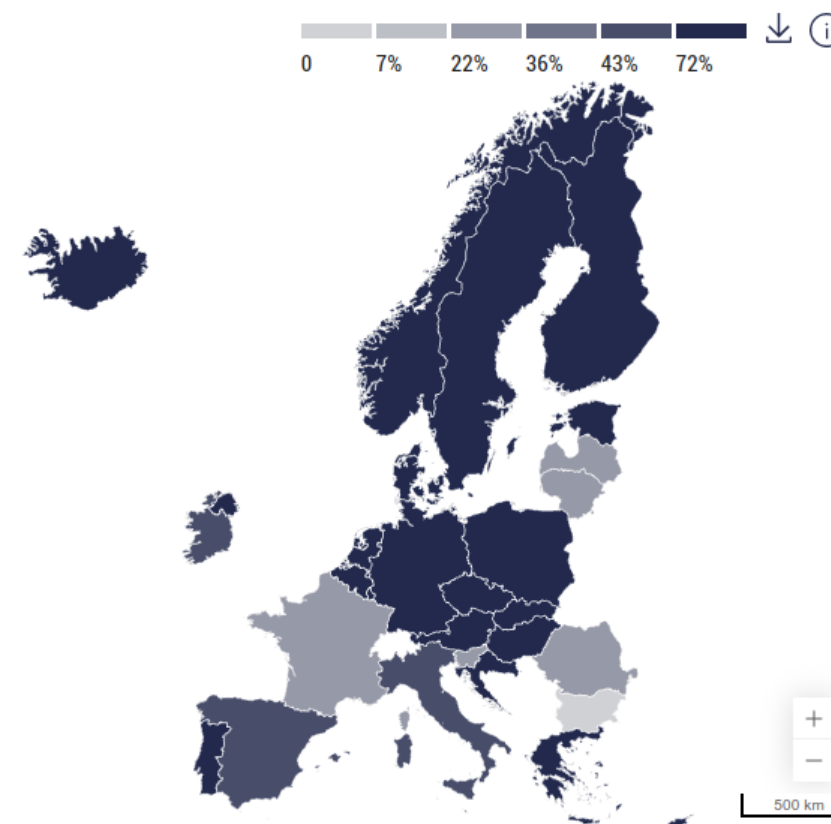
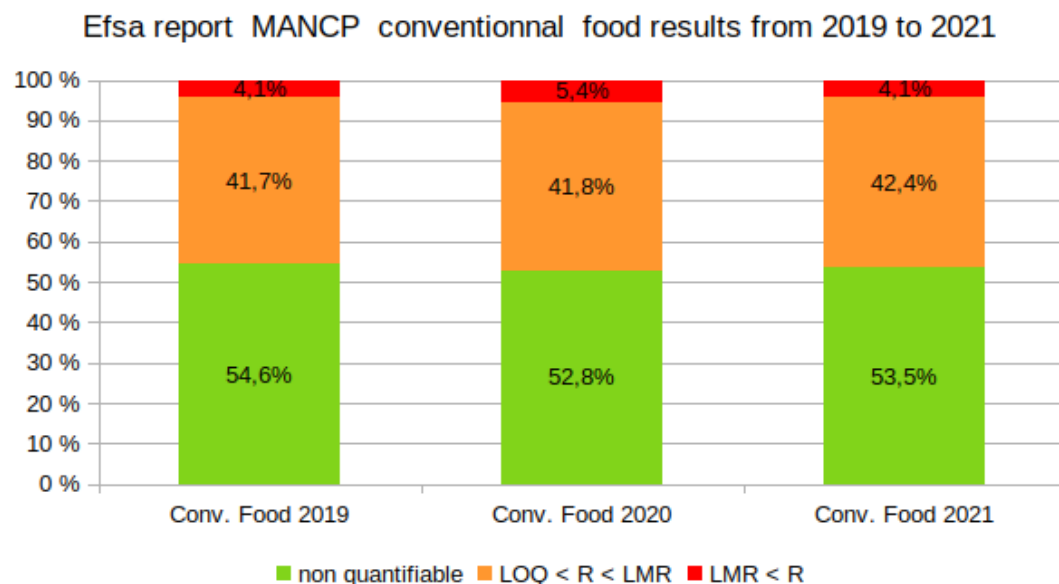
### Overview of residue found in food at EU level (MANCP 2023)

On based-risk analysis by country (n=87863)

44.3 % of analyzed food commodities contained quantifiable residue(s)

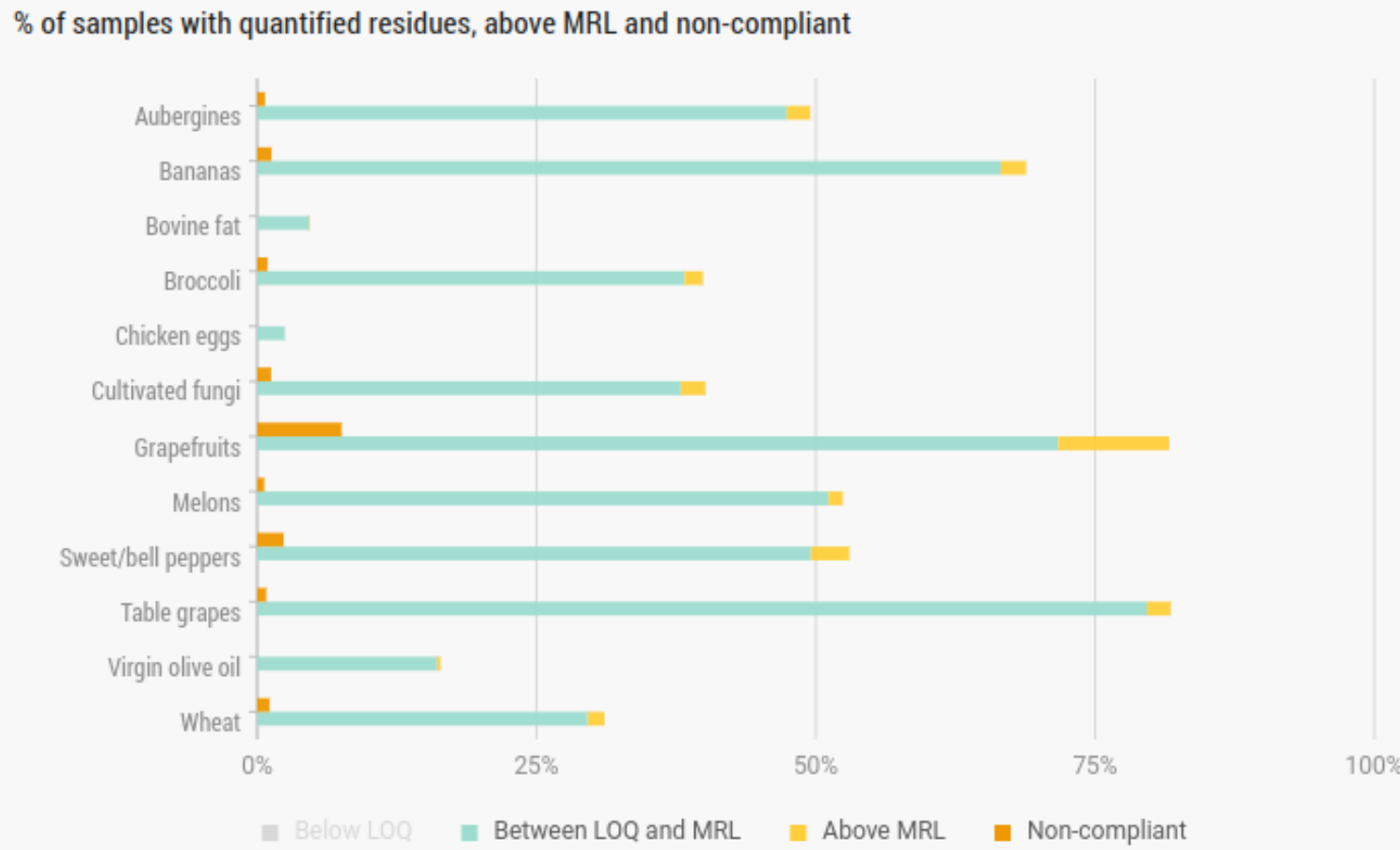
With a great disparity within MS

For the 3 last years, the figure evolves few



Rate of quantification by country (MANCP 2023)

### Which commodities are the most contaminated ?



- 41.9% (5,802) samples had quantified results
- 27% (3,734) contained more than one quantified pesticide.

Grapefruits, table grapes and bananas were the food products with the highest rate of quantified results and also with the highest number of multiple residues found.

EU-MACP 2023


### Which pesticide residues are found in food ?

The pesticides quantified in more than 100 samples and where a quantification rate higher than 10% was:

- copper compounds (78.3%), => 1.0% MRL exceedance rate \*\*
- mercury (20.4%), \*\*
- bromide ion (20.2%), \*\*
- fosetyl (17.2%),
- chlorate (12.0%), may comes from disinfection
- chlordecone (11.2%),
- dithiocarbamates (10.8%) => 1.2% MRL exceedance rate \*\*
- and ethylene oxide (10.2%) => 6.6% MRL exceedance rate

Contamination can come from different sources

EU-MACP 2023



\*\* Naturally occurring substances / contaminants present in the environment

### What about Organic Farming Products ?

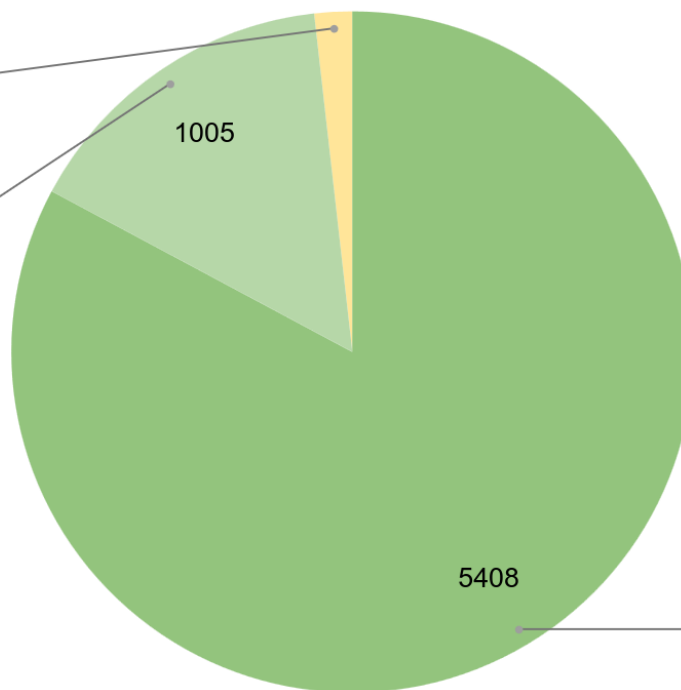
Residue findings in organic food EU-MACP (Efsa 2023)  
n=6530 samples

Above MRL

1.8%

Between LOQ & MRL

15.4%



17.2% of organic food products  
vs

41.9% of conventional food  
commodities contained quantifiable  
residue(s)

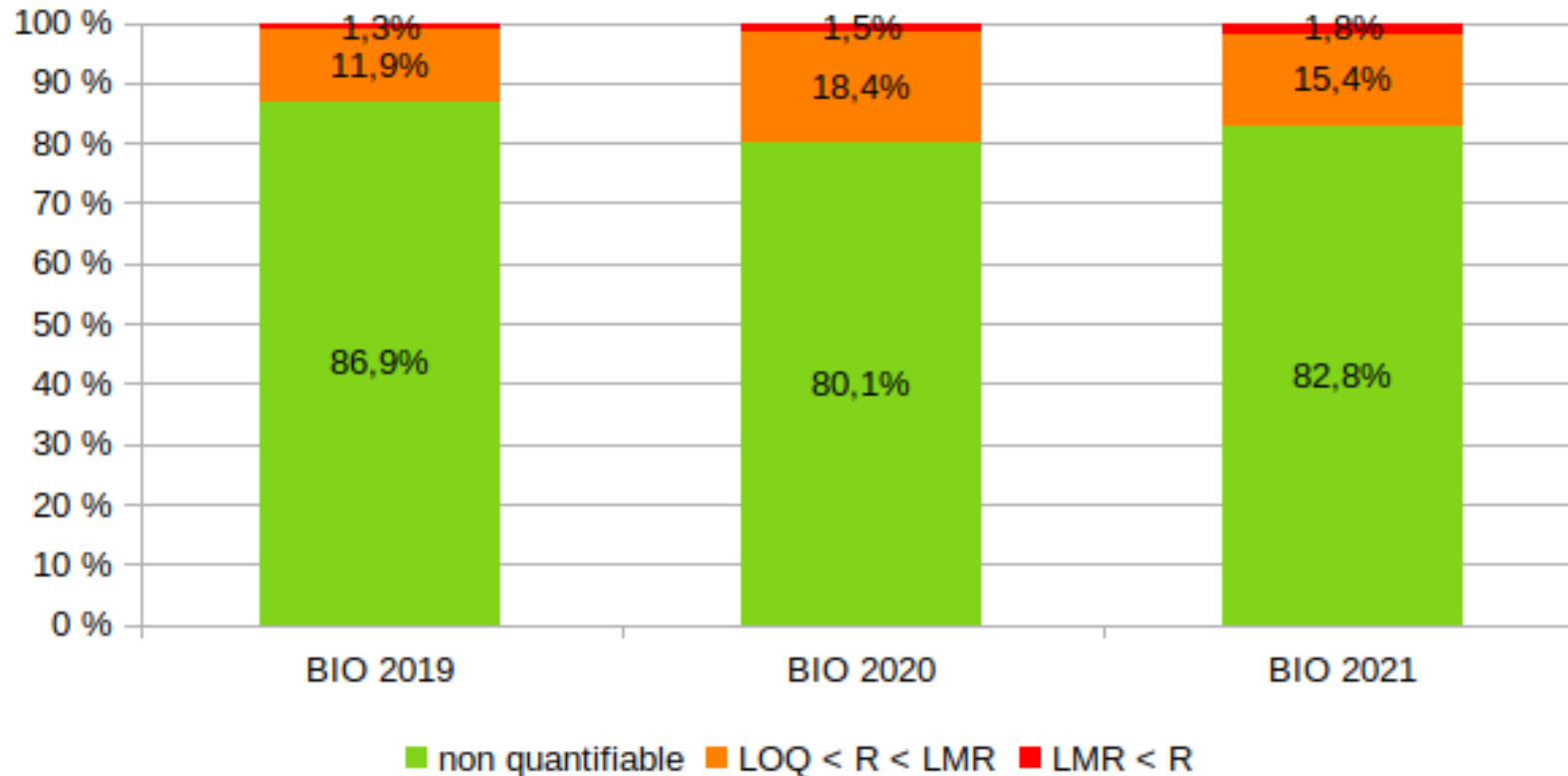


Below LOQ

82.8%

## What about Organic Farming Products ?

Efsa report MANCP organic food results from 2019 to 2021

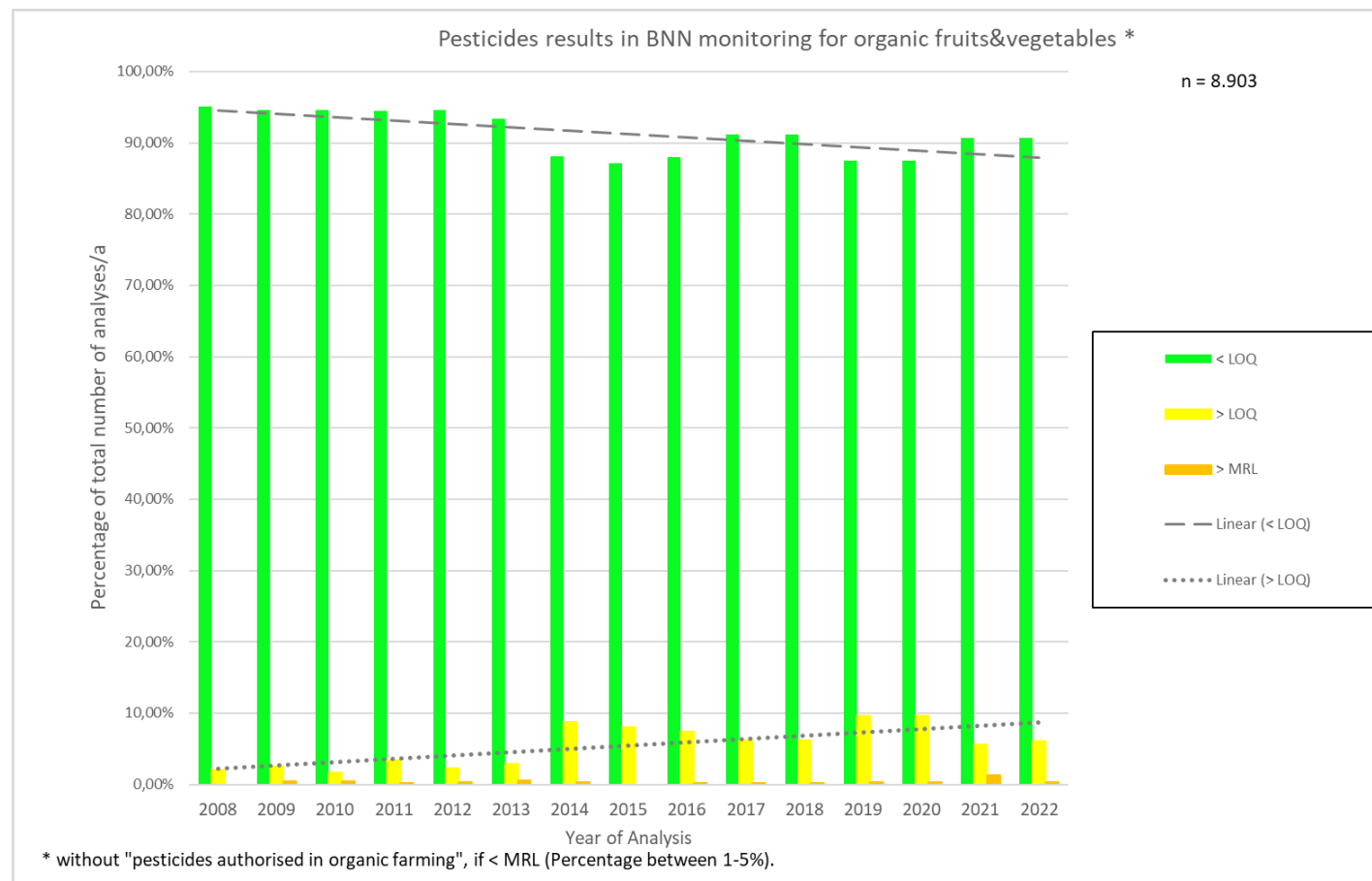


17.2% of organic food products  
vs  
46.5% of conventional food commodities  
contained quantifiable residue(s)

MANCP 2023



BNN gives trends for evolution of quantification in organic products for the last 15 years without OF authorised pesticide



Pesticide results from 2008 to 2022

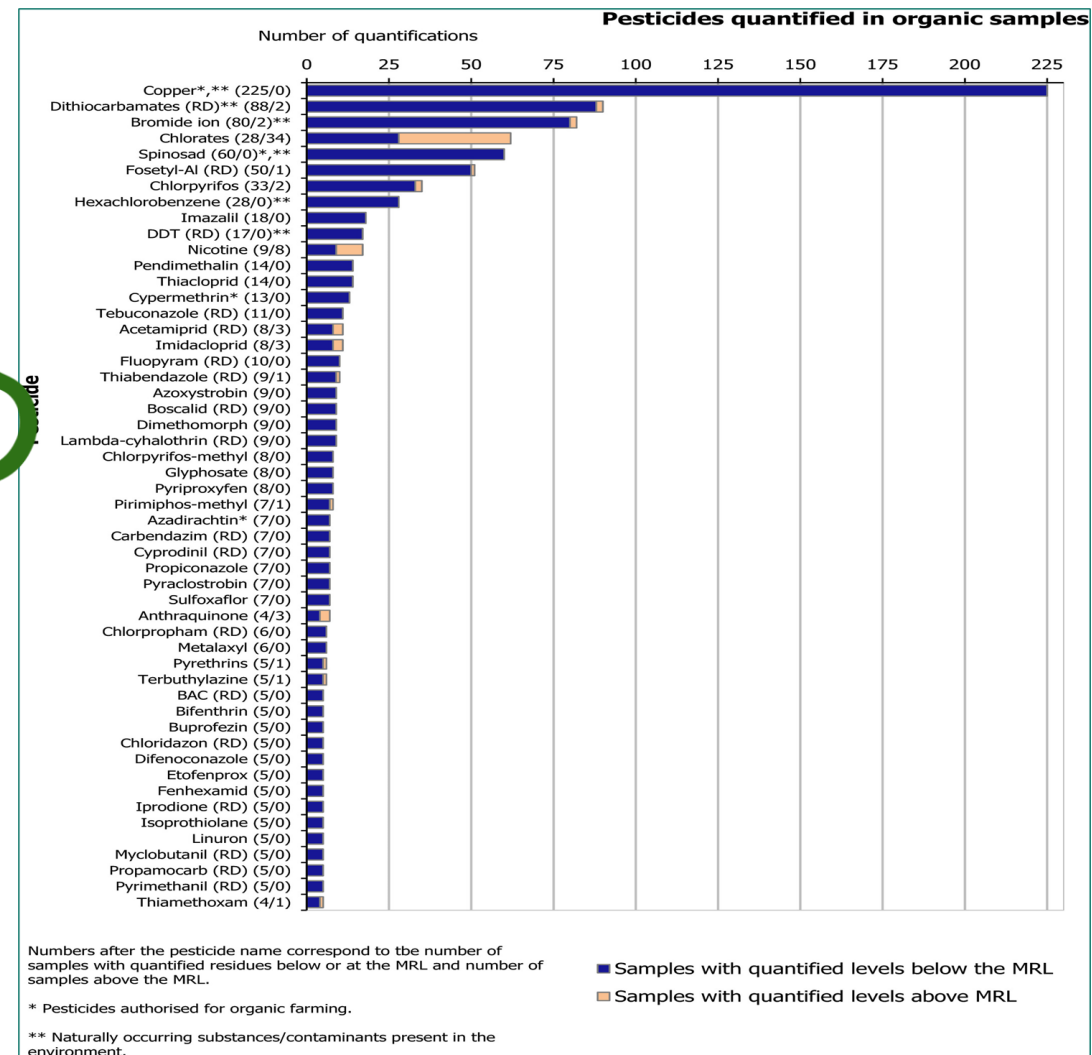


\*\*

Copper  
Dithiocarbamates (RD)  
Bromide ion  
Spinosad  
Hexachlorobenzene  
DDT (RD)

\*\* Naturally occurring substances / contaminants present in the environment

Most of the quantified substances are often present in samples flagged as **organic**, either because they are **authorised for use** (e.g. copper compounds), they **naturally occur** (e.g. bromide ion), they occur as **degradation product** of a sanitisation processed (e.g. chlorate) or are **persistent contaminants** of already banned substances (e.g. DDT (RD)).  
EFSA report 2023



## Which pesticide are found compared with OF ?

	Quantification rate in all food product (above 10% including MRL exceedance)	Quantification rate in Organic food (not including MRL exceedance)
copper compounds **	78.3%	79%
Mercury **	20.4%	5.9%
bromide ion **	20.2%	15%
fosetyl	17.2%	6.5%
Chlorate (may comes from disinfection)	12.0%	7%
chlordecone	11.2%	/
Dithiocarbamates **	10.8%	5.6%
ethylene oxide	10.2% (MRL exceedance 6.6%)	MRL exceedance 6.4%

Pesticide residues can come from multiples sources

German survey report 2022 „Ecomonitoring Baden-Württemberg 2022“ carried out by Chemical and veterinary investigation offices of Baden-Württemberg

In 2022, 423 samples of plant-based foods from organic farming were sampled. The **average level of pesticide residues across all organic fruit samples** analysed in the reporting year was **0.005 mg/kg** and the average level across all **organic vegetable** samples analysed was **0.003 mg/kg**.

The average content of pesticide residues thus differs from conventionally produced goods by a factor of 100.

Source:

Ecomonitoring Baden-Württemberg 2022

[https://www.cvuas.de/pesticides/beitrag\\_en.asp?ID=3889&subid=1&Thema\\_ID=5&lang=EN](https://www.cvuas.de/pesticides/beitrag_en.asp?ID=3889&subid=1&Thema_ID=5&lang=EN)

## What about concentration found ?

### Average Pesticide Amounts in Fresh Foods

The mere presence of plant protection substances can be seen by the average amounts of pesticide found in the samples, as the following tables show.

*Average pesticide residues per sample (in mg/kg)*

Fruit	2015	2016	2017	2018	2019	2020	2020	2022
<b>Organically produced samples</b>	0.002	0.001	0.002	0.004	0.003	0.004	0.002	0.005
<b>Conventionally produced samples</b> (excluding surface treatment substances or preservatives, phosphonic acid and bromide)	0.35	0.43	0.45	0.40	0.45	0.44	0.48	0.38

Vegetables	2015	2016	2017	2018	2019	2020	2021	2022
<b>Organically produced samples</b>	0.002	0.003	0.003	0.008	0.002	0.004	0.002	0.003
<b>Conventionally produced samples</b> (excluding phosphonic acid and bromide)	0.49	0.46	0.36	0.46	0.41	0.29	0.40	0.46

## Sensitive & complex issues

- Substances comes from natural sources, from multiples origin, and environment (global or neighbor)
- Processing factors are required for processed foods
  - determine standardised and realistic processing factors -

Annex 6 in CE n° 396/2005 => empty

various models for processing factors are available, which one to choose ?

For example: Spices association (ESA) <> bnn factors (BNN) <> tea&herbal association (THIE), etc also have different factors

## Challenges

- Need to find investigation process to determine whether the requirements of the EU Organic Regulation are met