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by Lach & Bruns

UPOP project
Ultra Low Levels of Pesticides in Organic Products

relana® Communication Note 25-01

https://www.relana-online.de/en/position-papers/

Aim of the project

Analytical approaches

Results

Summary and Conclusions

Aim of the project

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- Get reliable and statistically sound data about the “**presence**” of pesticides in products of organic agriculture
- Regulation 2018/848 articles 28 and 29: “**presence**” of non-authorised products and substances
- Is “**presence**” **appropriate** and **meaningful** to justify any activities or measures merely on the “presence” of pesticides?

Analytical approaches

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- Take at least **20 samples** of organic agriculture

- Applying the **common analytical MRM approach**, including common sensitivities and thus results.
  The requested **reporting limit** is:
  10 ppb (µg/kg) Corresponding to 0.010 mg/kg

- Analyse the same samples again with the most sensitive approach you are able to apply. The reporting of results should be as low as technically feasible. May be, it is possible to **achieve 10 ppt (ng/kg)?**

Analytical approaches

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- All 11 laboratories of the **relana® circle** for **excellence** in pesticide and contaminant testing participated in this project
- The laboratories are located in 5 different European countries:
  Belgium, Germany, Greece, Italy, and Spain
- Thus, the samples included resp. analysed within this project cover most relevant areas of organic agriculture production across Europe as well as imported products from other parts of the world.

Results

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Basics:

- Analysed products cover mostly all kind of **fresh fruits and vegetables** (from A as Apple to Z as Zucchini).
- The big majority of the products were unprocessed **without the risk of a contamination during** possible **processing.**
- **Also, a small number of processed samples** (fruit purée, rice, tea, wheat) or **seeds** (sesame, sunflower, corn) were analysed.

Results

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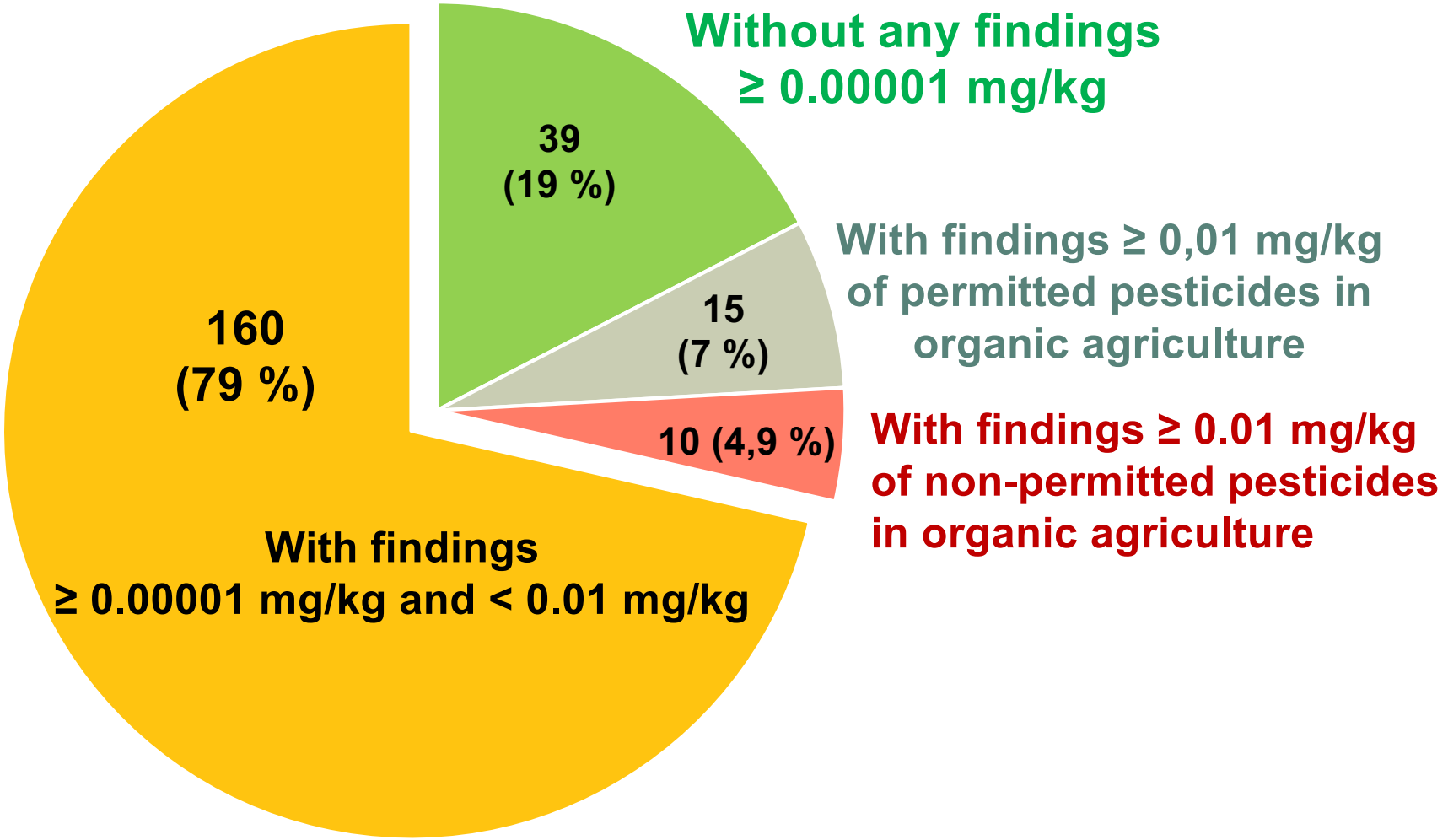
Basic findings:

- **203 samples in total**
- **39 samples (19%) without any findings ≥ 0,00001 mg/kg**
- **160 samples (79%) with findings between**
  ≥ 0,00001 mg/kg = ≥ 0,01 ug/kg = ≥ 10 ng/kg (ppt)
  and < 0.01 mg/kg
- **25 samples with findings ≥ 0,01 mg/kg (12,3%)**

  ==> 15 out of 25: allowed substances (7,4%)
  (Azadirachtin, Spinosyn A/D, Pyrethrins)

==> 10 samples with non-authorised substances (4,9%)

Results


Without any findings
≥ 0.00001 mg/kg
39
(19 %)
With findings ≥ 0,01 mg/kg
of permitted pesticides in
organic agriculture
15
(7 %)
With findings ≥ 0.01 mg/kg
of non-permitted pesticides
in organic agriculture
10 (4,9 %)
160
(79 %)
With findings
≥ 0.00001 mg/kg and < 0.01 mg/kg

Results

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Selected important fruits and vegetables

Total number of samples: 97

Minimum number of samples analysed: 5

"Important" in terms of market volume(s)

Commodity group	Total No. of Samples	No. of Samples ≥ **0,01 mg/kg** (≥ 10 µg/kg)	No. of Samples ≥ **0,00001mg/kg** (≥ 0,01 µg/kg)	No. of Samples **without any detection**
Apples	8	0	8 (100%)	0
Bananas	26	3	24 (92%)	2
Carrots	9	0	9 (100%)	0
Grapes	5	1	5 (100%)	0
Nectarines	6	1	5 (83%)	1
Oranges	5	0	4 (80%)	1
Paprika = Sweet pepper	5	0	4 (80%)	1
Peaches	9	2	7 (78%)	2
Pears	7	0	6 (86%)	1
Strawberries	5	1	5 (100%)	0
Tomatoes	12	2	8 (67%)	4
TOTAL	97	10	85	12

Summary and Conclusions

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From the analytical point of view, it is to be noted, that:

- **Limits of detection and quantification are variable, depending on the applied analytical method and the technical instruments available.**
- **Limits of detection and quantification are variable, depending on the aim of the requested analysis.**
- **Substances applied over a long period of time are omnipresent (like pesticides).**
- **A “Zero” concentration (level) does not exist.**
- **Substances are in principle also present below the analytical limits of detection resp. quantification.**

Summary and Conclusions

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It must be concluded, that **depending** on the

- **technical capabilities** of pesticide testing laboratories,
- **additional efforts applied** compared to routine approaches, and
- **willingness of laboratories' clients to pay** for these additional efforts

it is **possible to identify and quantify "unauthorised" substances** in **mostly every food product**, independent how this was produced resp. cultivated.

Summary and Conclusions

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→ Do not focus on the „**presence**“ or „**detection**“ of pesticides

→Use pesticide analysis as an important **tool** to **substantiate suspicious cases**, monitored by the competent authorities or organic control bodies

Summary and Conclusions

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How to deal with the described situation?

Can the lower analytical limit of quantification of Regulation 396/2005 provide more legal certainty?