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Directorate-General for
Health & Food Safety

NEED FOR SCIENTIFIC ADVICE ON RISKS AND BENEFITS OF CONSUMPTION OF FOOD IN RELATION TO THE PRESENCE OF CONTAMINANTS AND NUTRIENTS

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BACKGROUND

- The EU General Food Law (Regulation (EC) 178/2002)
- The EU legislation on contaminants (Regulation (EEC) No 315/93)

  → food legislation shall ensure a high protection of human life and health

  → provide that food can only be placed on the EU market, when it is safe. For contaminants, this means that a food containing a contaminant in an amount which is unacceptable from the public health viewpoint shall not be placed on the market.

BACKGROUND

- Contaminant' means any substance not intentionally added to food which is present in such food as a result of the production (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food, or as a result of environmental contamination.
- Contaminant levels shall be kept as low as can reasonably be achieved by following good practices at all stages of the production chain (the so-called ALARA principle).

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ESTABLISHMENT OF MAXIMUM LEVELS

- When necessary for protecting public health, maximum levels shall be established for specific contaminants → Procedure for setting maximum levels including a reference to the sampling and analysis methods to be used for enforcement of the maximum levels.
- Obligatory consultation of the European Food Safety Authority(EFSA) Panel on contaminants in the food chain before provisions having effect upon public health shall be adopted.

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ESTABLISHMENT OF MAXIMUM LEVELS

Maximum levels for contaminants are set taking into account

- the outcome of the risk assessment performed by EFSA, and
- at levels that are achievable by following good practices at stages of the production chain
- other legitimate factors

to ensure a high level of public protection.

Compliance with the maximum levels ensure in most cases that the European citizen is exposed to a contaminant at a level below the Health Based Guidance Value (HBGV) or results in an Margin of Exposure (MOE) that is of no health concern.

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CHALLENGES TO REDUCE LEVELS OF CONTAMINANTS

- The presence of not all contaminants in all foods can be minimized/prevented by applying good practices to levels that ensure a human exposure below the HBGV or result in an MOE that is of no health concern for all population groups in all exposure scenarios.
- Because: the presence of a contaminant in food is (sometimes) related to factors that cannot be fully managed by e.g. fishermen, farmers or food business operators because of e.g. unavoidable (historical) background environmental contamination, necessary food processing steps, climate change, extreme weather conditions …

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NUTRITIONAL BENEFITS

- Such foods where the presence of a contaminant cannot be prevented minimized to a sufficiently low level by applying good practices can be an important source of nutrients of which the intake is necessary for public health and consumption of these foods may provide indisputable nutritional benefits important for public health.
- It is important that such foods remain available for the consumer because of these nutritional benefits.
- It is therefore necessary that the nutritional benefits of these foods are weighed against the potential risks related to the presence of contaminants in these foods.

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DIOXINS AND DIOXIN-LIKE PCBs EFSA OPINION ON THE RISKS

The EFSA published in November 2018 a scientific opinion on the risk for animal and human health related to the presence of dioxins and dioxin-like PCBs in feed and food .

- The EFSA Panel on Contaminants in the Food Chain (CONTAM Panel) established a Tolerable Weekly Intake (TWI) of 2 pg TEQ/kg bw/week.
- Taking into account the occurrence and consumption data from European countries, the estimated human exposure to dioxins (PCDD/Fs) and dioxin-like PCBs (DL-PCBs) exceeded considerably the TWI for all age groups.
- Fatty fish was identified to be a main source of exposure

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NUTRITIONAL BENEFITS OF CONSUMPTION OF FISH

EFSA opinion in 2005:

- Fish is an important source of proteins of high biological value, long chain n-3 polyunsaturated fatty acids (LC n-3 PUFAs), certain vitamins and minerals.
- There is evidence that fish consumption, especially fatty fish, benefits the cardiovascular system and may also benefit foetal development.

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CONSUMPTION OF FISH RISK – BENEFITS

- Population groups have a different susceptibility towards the adverse health effects risks related to the presence of dioxins and dioxin-like PCBs in fish (vulnerable groups of the population).
- The nutritional benefits of the consumption of fish might be more beneficial for certain population groups than for other population groups.
- Nutritional benefits should be weighed against the potential risks for the different population groups.
- Dietary consumption advice should provide the optimal balance of maximizing the nutritional benefits and minimizing the potential risks.

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IMPORTANCE OF DIETARY ADVICE

- The consumption of certain foods is important for public health because important source of nutrients.
- Maximum levels established on the basis of the ALARA principle, ensuring the availability/supply of the food, might not in all cases for all population groups ensure a sufficient high level of human health protection.
- Dietary consumption advice towards all population groups and/or targeted towards certain vulnerable groups of the population is important to supplement the regulatory levels to ensure a high level of human health protection.

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NEED FOR SCIENTIFIC ADVICE RELATED TO DIOXINS AND PCBs

Scientific advice is needed to provide an updated risk-benefit assessment of fish consumption in relation to the presence of dioxins (PCDD/Fs) and dioxin-like PCBs and this in support of defining fish consumption advice at national level for different population groups to ensure that this advice provides an optimal balance between maximizing the benefits and minimizing the risks, taking into account the national consumption patterns, differences between fish species and availability on the domestic market.

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NEED FOR SCIENTIFIC ADVICE RELATED TO DIOXINS AND PCBs

- EFSA recommended in its opinion of 2018 that the current WHO2005 Toxic Equivalency Factors (TEFs) should be re-evaluated in order to take account new *in vivo* and *in vitro* data.
- WHO is currently undertaking this review of the TEF values (with support from EFSA)
- This updated risk-benefit assessment of fish consumption related to the presence of dioxins (PCDD/Fs) and dioxin-like PCBs has to take into account these possibly updated TEF values, as this might significantly influence the estimated exposure

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NOT ONLY ABOUT DIOXINS AND PCBs IN FISH …

- The consumption of fish is a major/important contributor to the human exposure of methylmercury, brominated flame retardants and perfluoroalkyl substances (PFAS).

- The influence of the presence of these contaminants on the outcome of the risk-benefit assessment has to be assessed because

- The dietary fish consumption advice needs to provide the optimal balance between maximizing the beneficial effects whilst minimizing the risks related to the presence of all contaminants

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NOT ONLY ABOUT DIOXINS AND PCBs IN FISH …

Complex – not straightforward

- Different contaminants (might) result in different adverse health effects, affecting different groups of the population
- Presence of contaminants different in different fish species (fatty fish versus lean fish, hydrophilic versus lipophilic contaminants)
- The nutritional benefits might be different for population groups
- The presence of nutrients is different in different fish species (fatty fish versus lean fish).

A challenge for the scientific advice / risk benefit assessment!

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NOT ONLY DIOXINS AND PCBs NOT ONLY FISH …

- Mycotoxins – high fibre breakfast cereals, whole meal flours, whole grains …
- Acrylamide – high fibre breakfast cereals, whole meal breads, …
- …

- The scientific advice should provide the basis for risk-benefit assessments also for these combinations of contaminants/foods.

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Thank you for your attention !

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