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SUPPLEMENT

namely *Cronobacter sakazakii*, *Cryptosporidium*, arsenic, dioxin-like polychlorinated biphenyls and docosahexaenoic acid.

An updated RBA framework was then suggested, based on current trends and lessons learned from the particular case study. In addition, four research questions were investigated: (i) how to carry out a multidisciplinary RBA considering microbiological, chemical and nutritional aspects, is it possible to set a generic framework? (ii) How to compare health impacts, is it possible to use a common metric? (iii) How to consider variability and uncertainty in RBA? and (iv) How to communicate and interpret RBA results? In the present communication, the developed framework will be presented as well as the main conclusions related to each question.

RBA currently appears to be an essential tool to provide comprehensive recommendations in terms of the food and human health nexus. It is also a complex and multidisciplinary approach which has to face challenges from conventional risk assessment but also challenges to aggregate, interpret and communicate all RBA results together to provide an overall health impact.

67. Safety assessment of nano-fertilisers: time to take action?

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Fertilisers are chemical compounds intended to enrich agricultural soils and provide nutrients to plants. So-called EC fertilisers are regulated by Regulation EC 2003/2003 on mineral fertilisers and may circulate freely within the EU market. The rules for other fertilisers (national fertilisers) are currently not harmonised at EU level and are governed by national laws, although mutual recognition applies.

In March 2016 the Commission put forwards a legislative proposal on fertilising products, with two main objectives: (1) sustainable fertiliser production from domestic sources, transforming waste into nutrients for crops; and (2) harmonised cadmium limits for phosphate fertilisers. However, a consistent assessment framework on fertilisers is still unavailable. Some EFSA opinions on contaminants (e.g. nitrates, perchlorate) considered also the presence in fertilisers. The DG SANTE Scientific Committee on Health and Environmental Risks (SCHER) has provided scientific advice on specific fertilisers issues (presence of cadmium, use of calcium cyanamide), but paid limited attention to the potential human exposure via the soil-food chain.

Nano-agrochemicals are an important application area of nanotechnologies in the agri-food sector with nano-fertilisers featuring among the key innovative products. The extensive body of evidence on the fate and effects of nanoparticles in (edible) plants raises potential concerns in relation to:

food safety (deposition of particles in plant tissues and soil-forage-animal carry-over)

plant health (phytotoxicity)

environmental impact (build-up in soil and adverse effects on soil organisms).

Nanomaterials may pose hazards and risks that are considerably different from conventional chemicals: the new conceptual framework of nano safety assessment should support a robust scientific approach to nano-fertilisers. Nano-fertilisers may lead to considerable agricultural benefits (e.g. enhanced nutrient bioavailability), but also to potential risks. However, these issues are currently not addressed in the Guidance on Nano Risk Assessment under development.

68. Environmental impact assessment of the food supply chain at various geographical levels

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Food production and processing have a high impact on the environment and there is much concern about environmental pollution and demand for resources in intensive farming systems. Food-related emissions account for 31% of the total greenhouse gas emissions of the European Union. This is expected to get worse as the world population is constantly growing and it is estimated to reach around 9 billion people by the middle of this century, with Europe increasing its population by around 4%. In addition, a shift from a vegetable-based to a more meat-based diet has been observed, particularly in developing countries in the last years.

The patterns of food consumption of the populations are clearly the main driver of the food supply chain. This project is aimed at assessing the environmental footprint (carbon, water and ecological) of the food consumed in the European Union at a different level of resolution (region, country, EU), taking into account the food supply chain. Impact analysis focuses mainly on greenhouse gas emissions, water consumption and land use. Data from the EFSA Comprehensive European Food Consumption Database are used for this assessment and statistical analyses are carried out to identify the role of possible drivers (e.g. age, gender and country) of food consumption. A more in-depth analysis using a spatial scale model based on data from the Po Valley (Italy) is presented for the livestock sector, which is responsible for 14.5% of total annual anthropogenic emissions world-wide'.