

DIOXINS

Food safety – needs a solid food chain approach

INFORMATION NOTE

The Food and Agriculture Organization (FAO) is reminding countries and operators all along the food chain of the importance of good practices and ongoing vigilance to ensure the safety of foods of animal origin. The call arises as a new episode of dioxin contamination is causing concern to governments, producers and consumers alike. While the most recent event relates to pork meat and pork containing products originating from Ireland, dioxin contaminated Italian mozzarella had to be removed from the market earlier this year, and widespread contamination of foods of animal origin with dioxin occurred in several European countries in the late '90's.

These recurring incidents highlight the need for feed safety as the first step in the production chain, the implementation of best practices by all operators in the chain, and the capacity to detect contaminated food and feed. Early detection of non-compliance through official monitoring programmes facilitates minimising risks to animal and human health, timely dissemination of clear information targeted to those who need it, identification of contaminated food products and effective containment and recall.

Such contamination events not only present a risk to human and animal health, but have serious economic repercussions in the agricultural sector, impacting on the livelihoods of hundreds of workers and producers. The importance of measures to enable tracing of food and feed products are highlighted to identify those products which are contaminated and to facilitate recalls where necessary.

Dioxins and animal feed

Dioxins (including a number of chemically related lipophilic, i.e. fat-soluble, compounds with similar toxic properties) are formed as unwanted by-products from a number of activities including certain industrial processes. These compounds are poorly soluble in water, but adhere to mineral and organic particles, and are thus deposited in the environment. Due to the very slow degradation of these compounds they are prone to concentrate along the food-chain. Foods of animal origin are the predominant route of human exposure due to the deposition of dioxins in the fat component of animal products, with more than 90% of human exposure to dioxins through meat and dairy products and fish and shellfish. Animal feed is often implicated as the source of dioxin in foods of animal origin, and exposure may originate from many different sources. Dioxins may be inherent to a product, can be formed during heat processing, or may arise through the use of treated products in animal production, or when pasture lands are located near polluting plants.

The FAO Fact Sheet “Dioxins in the Food Chain: Prevention and Control of Contamination” provides additional information http://www.fao.org/ag/agn/agns/chemicals_dioxins_en.asp.

Risk for consumers

Reducing dioxin exposure is an important public and animal health goal and also has positive economic repercussion in the agriculture sector.

Exposure to dioxins has been shown to cause a wide variety of toxic effects, including cancer. Endocrine, reproductive and developmental effects are among the most sensitive to dioxin exposure. A comprehensive international risk assessment of dioxins was performed in the 2001 by the Joint FAO/WHO Expert Committee on Food Additives (JECFA), taking into account all available information. The experts concluded that for all the effects, including cancer, there was a threshold below which no effects were noted. Thus a tolerable intake, expressed as a provisional tolerable monthly intake or PTMI, was established. The PTMI is 70 picogram/kg bodyweight per month. This is the amount of dioxins that can be ingested over a lifetime without appreciable health effects.

Based on this tolerable intake and known levels in the food supply, targets to reduce the exposure can be set.

Prevent dioxin entering the food chain

All operators along the food and feed chain (feed and food producers, manufacturers, transporters, distributors, retailers, etc), including food recycling plants and home mixing operations, must share responsibilities to reduce contamination at its source and avoid that dioxin contaminated feed enters the food chain. Feed and feed ingredients should be produced, processed and handled with the proper know-how and care, and in compliance with existing norms and codes of practice, and feed safety assurance systems. The Codex Alimentarius Commission, the international body responsible for the establishment of food standards has already provided specific guidance for the prevention and reduction of dioxin in the *Codex Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Food and Feed (CAC/RCP 62-2006)*.

Other relevant Codex texts that should be consulted for implementation of good practices include: *Code of Practice for Source-Directed Measures to Reduce Contamination of Food with Chemicals (CAC/RCP 49-2001)*; and *Code of Practice on Good Animal Feeding (CAC/RCP 54-2004)*. Work is ongoing in the Codex Committee on Methods of Analysis and Sampling (CCMAS) where discussion has started on methods of analysis for dioxin and dioxin-like PCB, despite the fact that no maximum levels (MLs) in food products have been agreed at the international level. Robust and reliable analytical methods are essential to monitor the levels of contamination at the national level.

An effective response

Recent food contamination incidents with global impact show that they are not always detected early and constant vigilance is therefore required.

As mentioned above, national governments and producers have a joint role to monitor the safety of food and feed supply and to take action to protect public and animal health. Food and feed contamination monitoring systems must be in place to ensure that tolerance/action levels are not exceeded. In the event of food products being contaminated, appropriate action should be taken to recall and safely dispose of the product, if assessment of the risk to human health so requires. Countries should have contingency plans to identify, detain and dispose of

contaminated food and feed. The efficacy of systems and control measures in place, will directly influence the ability of countries to respond and ensure contaminated foods do not reach the consumer. Recent events have once again demonstrated the need for all food operators to implement appropriate controls at all points in the food chain, and the importance of effective food and feed control programs.

An effective response may include the need to communicate at regional and international levels where contaminated food and feed products have been traded and reached other countries. In this regard, FAO reminds countries of the use of the International Food Safety Authorities Network (INFOSAN), a mechanism that promotes the exchange of food safety information and improves collaboration among food safety authorities at a global level. Where food contamination with global impact do occur, countries are encouraged to share appropriate information with this Network through their designated INFOSAN contact points.

For further information contact:

FAO Nutrition and Consumer Protection Division Renata Clarke Food and Agriculture Organization of the United Nations Viale delle Terme di Caracalla 00153 Rome, Italy Fax: +39 06 5705 4593 E-mail: renata.clarke@fao.org	FAO Animal Production and Health Division Daniela Battaglia Livestock Production Officer Animal Production and Health Division V.le delle Terme di Caracalla 00153 Rome, Italy Daniela.Battaglia@fao.org
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