

LII-06

Carry-over of dioxins and PCBs in food-producing animals

L.A.P. Hoogenboom¹, M.J. Zeilmaker², J.E. van Eijkeren², A. van Vuuren³, A. Klop³, W.A. Traag¹

¹ RIKILT Institute of Food Safety, Wageningen UR, Akkermaalsbos 2, Wageningen, the Netherlands

² RIVM National Institute for Public Health and Environment, Antonie van Leeuwenhoeklaan 9, 3721 MA Bilthoven, The Netherlands

³ ASG Wageningen UR, Livestock Research, Edelhertweg 15, Lelystad, The Netherlands

E-mail:ron.hoogenboom@wur.nl



Dioxins and PCBs present a major threat to the food chain. Consumers are primarily exposed through consumption of animal derived products like meat, eggs and milk, and fish. Strict limits for both food and feed have been set in the EU to reduce the exposure of consumers. Food producing animals may be both exposed through feed and through the environment or housing facilities. Increased control by both authorities and companies (self-control) have recently resulted in discovery of a large number of incidents. To manage



these incidents it is very important to have mathematical models that can predict the potential consequences of a contamination but also the onset of the incident and the duration, once the exposure of the animals has been eliminated. Models may also be used to evaluate the possible pattern in the original source which is required to find this source. In the past several models have been developed for this purpose, in principle modelling the total TEQ-levels in feed and animal derived products. Since the impact of an incident also depends on the type of dioxins and dl-PCBs involved in the incident, a more specific model, based on individual congeners, seems more appropriate. This is one of the aims of the QSAFFE project in which data from previous studies as well as studies performed within the project are used.

A potential source of dioxins are fires. This can be both accidental fires near an area with animal feed (e.g. grass, corn) or drying processes used to dry feed commodities. Although various studies have examined the carry-over of dioxins in dairy cows, there was some debate on the actual carry-over of dioxins formed during fires, some studies showing a very low carry-over. This hampered to risk assessment and thus risk managing to deal with fires and drying processes. For this reason a carry-over study was performed with dairy cows, fed with corn contaminated by a fire with PVC and with beet pulp that became contaminated by drying with coal containing remains of a plastic roof. The study shows that levels that just slightly exceed the maximum levels in feed may already result in clearly increased levels in milk. This also stresses the need to further evaluate the role of drying processes in feed production.

Keywords dioxins;PCBs;carry-over;dairy cows

Acknowledgement The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° KBBE-265702 (QSAFFE)

This communication is under the responsibility of the authors and does not reflect the view of the European Union Commission.