



The voice of the European food and drink industry

T-2 and HT-2 Toxins: Current Status Across the Food Supply Chain

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Confederation of the European Food and Drink Industries
(CIAA)
& Food Chain Partners





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CIAA Members

- COUNTRIES
 - 26 National Food Industry Federations, including 3 observers
- SECTORS
 - 28 European Sector Associations
- COMPANIES
 - 19 major companies producing in the EU



Important Points to Consider Across the Supply Chain (1)

- Cereals are an important part of our diet, delivering significant **health benefits**;
- **Consumer exposure** to T-2 and HT-2 toxins in the diet has yet to be sufficiently assessed across all EU Member States, despite the information contained in the SCOOP report of 2003, and therefore the real risk for the consumer remains unclear;
- **Continued research** is needed in order to determine how the presence of T-2 and HT-2 toxins in crops could be minimised while fulfilling biodiversity and food safety requirements, in order that farmers can be provided with appropriate technical advice.



Important Points to Consider Across the Supply Chain (2)

- **Seasonal, geographic and crop variation** all influence the level of T-2 and HT-2 formed, therefore it is important to pinpoint trends across several years;
- **Consistent advice by authorities** (including between the various Commission DGs) on how best to address T-2 and HT-2 is imperative.



Sampling, Detection and Analysis (1)

Sampling:

- Work on sampling is still ongoing within CEN: Publication expected in Summer 2009

Screening:

- A number of methodologies are available but have some limitations.

Rapid detection methods:

- The first lateral flow test for T-2/HT-2 has been released in Europe, however this is not yet widely used and has not yet been EU-standardised.



Detection and Analysis (2)

Classical Confirmation Methods:

- **EU validated analysis methods** to manage the compliance of crops placed on the market are also an essential pre-requisite for any regulatory measures. Analysis methods for T-2 and HT-2 in cereals, babyfood and compound animal feed have recently been validated by the JRC but the EU-validation process has yet to be finalised;
- European consortium BioCop is developing electro-chemical methods to determine T-2 and HT-2 (http://www.biocop.org/content_pdf/Electrochemical_determination_Ir_Hans_van_Egmond_BioCop_Open_Day.pdf)



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Limited Opportunities to Influence Development of T-2 and HT-2

- T-2 and HT-2 toxins occasionally develop in the field during the growing period and subsequent harvest;
- There are limits on how their presence can be minimised at pre-harvest stage;
- Studies are underway into the fate of T-2 and HT-2 toxins during processing.



Fate of T-2 & HT-2 Toxins During Processing

- De-hulling
 - De-hulling effect on reduction varies according to initial concentration in the raw material (significant reduction at high levels, & lower reduction at low levels)
- Flour Milling
 - T-2 and HT-2 toxins are not destroyed but unevenly redistributed between fractions (eg. in wheat). It is mostly attached to the outer hull of the grain, therefore found more in bran and wholemeal flour, but the milling process attaches it as well to the inner grain fractions, or the “whiter” flours.
- Starch Production
 - Achieves a reduction in wheat and maize starch.
- Other Processes (final processing, eg. Snacks, Fine Bakery Wares)
 - No impact, as T-2 & HT-2 are heat stable



Case Study: Current Lack of Opportunities for Millers to Influence Development of T-2 and HT-2

- Although there are various ways to determine the presence of DON and ZEA in grain, it is not possible to identify T-2 and HT-2 using the same methods (physical checks, etc);
- Millers are obliged to examine each lot, which is both time-consuming and costly;
- Research has shown that the quantity of T-2/HT-2 cannot at present be reduced during the milling process, especially where wholemeal flour and grits are concerned.
 - However, there is still insufficient knowledge about reduction, as infected lots are scarce.



Observations on the Reduction of T-2 and HT-2 Toxins Across the Food Chain

- To our knowledge, there are very limited ways at present to reduce T2/HT2 across the food chain;
- Successful reduction of T-2 and HT-2 Toxins across the food chain would require consistent messages from authorities (eg. at present, environmental policies are not always consistent with agricultural policies);
- The food chain has formed a Sub-Group on Fusarium Toxins with the goal of sharing best practice and knowledge;
- At least two seasons are needed in order to address minimisation of T-2 and HT-2.



Potential Impact of Legislation

- If limits are considered to be absolutely necessary, practical raw material purchase specifications are crucial to make compliant finished products;
- Inappropriate limits would have an impact upon crop availability, market for intermediates and final products on the market, eg:
 - Increased transport of raw materials over long distances and subsequent negative environmental impact;
 - Reduced consumer choice;
 - Rising cereal costs and consequent negative impact on the competitiveness of the EU market, and
 - The increased risk of non-compliance by non-EU imports.



Conclusions & Recommendations

- Cereals are an important part of our diet, delivering significant health benefits. A **risk-benefit** approach is therefore recommended when considering potential measures to address T-2 and HT-2 contamination;
- If maximum levels are absolutely necessary, a **minimum implementation period** of at least two harvest years is necessary to enable the food chain to comply with the levels;
- There must be **consistency between levels** for raw materials, intermediate products and finished products.



Next Steps

- The food chain is committed to ensuring the safety of food products, and, to this end, is actively **committed to supporting further work** in:
 - Effective controls to minimise the risk of T-2 and HT-2 toxin formation, including requesting the provision of appropriate technical advice to farmers;
 - Data collection (this should be over at least two seasons);
 - Development of appropriate harmonised and validated sampling, detection and analysis methods.



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Thank You