Mycotoxins: The Impact on Processors

19th October 2022
BCPC

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Technical Chair – Oat Millers’ Forum (Europe) within CEEREAL

Significant work with FSA / FSS, European Commission
Plus UKFM, MAGB, AIC etc

Morning Foods
15th Generation Independent Family Business, established 1675 (Britain's 4th oldest registered business)
UKs largest oat miller – mills in Crewe, Cheshire (Morning Foods) & Boyndie, Aberdeenshire (Hamlyns of Scotland)
Breakfast Cereal production in Crewe and Buckley, Flintshire
Branded (Mornflake / Hamlyns) & Own-Label
- UK Retail
- UK Business to Business
- Export (76+ Countries)
Plus significant animal feed interests
Mycotoxins

• Field vs Storage
• Legislative Compliance

• A question of numbers / percentiles
• Plus ability to mitigate
  • Field
  • Processing
• Plus ability to test (sampling / analysis issues)
Legislative Compliance

- Clear parallels with legislation on plant protection products
- GB Regulation as of 11pm 31/12/2020 ≡ EU (Reg 1881/2006)
• Commission Regulation (EU) 2021/1399 of 24 August 2021
  Ergot Sclerotia & Ergot Alkaloids (Effective 01/01/2022)
• Commission Regulation (EU) 2021/1408 of 27 August 2021
  Tropane Alkaloids (Effective 01/09/2022)
• Commission Regulation (EU) 2022/1370 of 5 August 2022
  Ochratoxin A (Effective 01/01/2023)
• Advanced discussions on T-2/HT-2 & Deoxynivalenol
GB Regulation

- No changes since EU-Exit
- GB Risk Analysis Process
  - FSA/FSS Priority list of Contaminants (Jan 2022)
  - Process now started on T-2/HT-2
  - Potential Divergence within GB.....
    - Specific stakeholder group in Scotland
- Risk of GB adoption of EU Regulations by Retailers to facilitate trade
## ANNEX TO DRAFT REGULATION

In the Annex to Regulation (EC) No 1881/2006, section 2, entry 2.7 is replaced by the following:

<table>
<thead>
<tr>
<th>Foodstuffs</th>
<th>T-2 and HT-2 Toxin</th>
<th>Maximum level (µg/kg) Sum of T-2 and HT-2 Toxin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7.1 Unprocessed cereals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Barley, maize and durum wheat with the exception of unprocessed maize intended to be processed by wet milling</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>- Oats</td>
<td></td>
<td>1250</td>
</tr>
<tr>
<td>- Other cereals</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>2.7.2 Cereals placed on the market for the final consumer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- oats, barley, maize and durum wheat</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>- other cereals</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>2.7.3 Cereal milling products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- cereal bran, oat milling products (including oat flakes) and maize milling products</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>- other cereal milling products</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>2.7.4 Breakfast cereals composed of at least 75 % of cereal bran, oat milling products, maize milling products and/or whole grains of oats, barley, maize and durum wheat</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>2.7.5 Bakery wares, pasta (dry), cereal snacks and breakfast cereals other than those referred to in 2.7.4</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>2.7.6 Processed cereal-based foods for infants and young children and baby foods</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>2.7.7 Dietary foods for special medical purposes intended for infants and young children</td>
<td></td>
<td>10'</td>
</tr>
</tbody>
</table>
T-2 / HT-2 Toxins in Oats

- Primary cause *Fusarium langsethiae*
- Symptomless disease in oats
- Relatively high in UK oats, especially in Scotland [.....Europe.....?] 
- Levels show unpredictable year-to-year variation, with some “high” years (e.g., 2014 & 2015 harvests) and some “low” years (e.g., 2022)
- No commercially viable field mitigation
- Levels in field show significant variation
- Reduction through milling varies from c. 60-97% (cleaning & husk removal) – EC Proposal assumes 96% reduction (1250 → 50ppb)
- Reduction through milling is not batch-to-batch predictable
T-2 / HT-2 Toxins in Oats

- No reliable rapid test on oats – so testing is through LC-MS/MS at c. £120/sample and typical 5 working day lead time (Fera c. 30 days!)

- In a “high” year 10-30% of UK unprocessed oats would be non-compliant

- In a “high” year c. 20% of oat milling products would be non-compliant

- In a “high” years c. 20% of composite products (breakfast cereals, biscuits etc) would be non-compliant

But identification of compliant vs non-compliant products is hugely challenging and carries a massive reputational / recall risk.
And ....

• Issues in UK oats are well understood – 15+ years of data collection, science, and lobbying

• Issues in wheat, barley, and maize less understood, but there will be compliance issues (recent RASFF on maize-based snack with high T-2/HT-2)

• Discussions on deoxynivalenol in EU will impact UK wheat

• But strong likelihood that GB (England) will not follow with changes on T-2/HT-2 & deoxynivalenol (local exposure data + correct use of risk / benefit principles) [Scotland??]

• Retailers hold the key
The Ongoing Work

• EU Work
  • Presentation to EC Member State Expert Working Group on Agricultural Contaminants 24th October in Brussels
  • Comprehensive Oat “Dossier” developed

• GB Work
  • FSA/FSS Risk Analysis work on T-2/HT-2 now started
  • Scottish Stakeholder Group
  • UK Cereal Trade Position

OMF Oat Dossier
Research must continue in several targeted areas:

- Collection of representative data from the major oat growing and milling member states, ensuring that terminology and sample provenance are clearly understood.

- Breeding of milling oat varieties which are resistant to Fusarium infection (whilst ensuring that in mitigating against one issue, a different, potentially more significant issue is not created).

- Development of a reliable validated rapid (<10 minutes) test.

- Epidemiology of *Fusarium langsethiae* infection, both of the oat plant and the oat grain.

- Further investigation and recognition of the fact that smaller oat grains/kernels/groats tend to have higher levels of T-2 and HT-2 toxins than larger grains/kernels (groats).

- The potential impact of EU sustainability initiatives and climate change on mycotoxins.
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