BIOMIN Mycotoxin Survey

A summary of the major threats

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BIOMIN Mycotoxin Survey

A summary of
From January to December 2013, a total of 4,218 samples were collected worldwide and analysed for the presence of mycotoxins. In total, more than 16,300 single analyses were carried out for the most important mycotoxins in terms of agriculture and animal production. These were aflatoxins (Afla), zearalenone (ZEN), deoxynivalenol (DON), fumonisins (FUM) and ochratoxin A (OTA). Samples were analysed by high performance liquid chromatography (HPLC) and Enzyme-Linked Immunosorbent Assay (ELISA). Only single commodities were analysed by ELISA.

Overall results

In the more than 4,200 samples analysed worldwide, Afla were present in 30%, ZEN in 37%, DON in 59%, FUM in 55% and OTA in 23% of all samples (Table 1).

Table 1. Overview of worldwide survey results (2012 and 2013)

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</thead>
<tbody>
<tr>
<td>Number of tests</td>
<td>2,636</td>
<td>2,839</td>
<td>3,320</td>
<td>3,470</td>
<td>3,712</td>
<td>3,931</td>
<td>2,570</td>
<td>2,699</td>
<td>2,230</td>
<td>2,459</td>
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<tr>
<td>Percent positive (%)</td>
<td>25</td>
<td>30</td>
<td>46</td>
<td>37</td>
<td>64</td>
<td>59</td>
<td>56</td>
<td>55</td>
<td>31</td>
<td>23</td>
</tr>
<tr>
<td>Average of positives (µg/kg)</td>
<td>34</td>
<td>33</td>
<td>251</td>
<td>133</td>
<td>1,088</td>
<td>770</td>
<td>1,350</td>
<td>1,421</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Maximum (µg/kg)</td>
<td>6,323</td>
<td>1,563</td>
<td>9,854</td>
<td>5,324</td>
<td>30,200</td>
<td>29,267</td>
<td>42,120</td>
<td>26,828</td>
<td>170</td>
<td>595</td>
</tr>
<tr>
<td>Commodity tested</td>
<td>Ground-nut cake</td>
<td>Maize</td>
<td>Corn Gluten Meal</td>
<td>Maize</td>
<td>Maize</td>
<td>Barley</td>
<td>Maize</td>
<td>Dried Distiller’s Grains</td>
<td>Maize</td>
<td>Finished Feed</td>
</tr>
<tr>
<td>Source country</td>
<td>Myanmar</td>
<td>China</td>
<td>China</td>
<td>USA</td>
<td>China</td>
<td>Malaysia</td>
<td>US</td>
<td>India</td>
<td>Spain</td>
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</tbody>
</table>

Mycotoxins are a large and growing family produced by different fungi. Analytical tools have so far identified more than 1,000 different mycotoxins. Aflatoxins, zearalenone, deoxynivalenol, fumonisins and ochratoxin A are still among the most researched and frequently occurring mycotoxins worldwide. As part of its approach towards mycotoxin risk management, BIOMIN provides regional insights into the occurrence of the most important mycotoxins in primary feedstuffs.
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Distribution of mycotoxin contamination by risk levels

Field mycotoxins such as DON, FUM and ZEN were the most frequently occurring ones. The risk levels of these mycotoxins were evaluated according to the percentage of samples in the different contamination ranges.

Important results were gained in this survey especially in the case of the type B-trichothecene DON. Of all the surveyed samples, 42.5% showed a DON contamination above 200 µg/kg which represents a medium risk level for pigs. Of all the feed samples, 12.5% were above the EU guidance values for DON (900 µg/kg) in complementary and complete feedstuffs for pigs (EC, 2006).

A clear concern

From the mycotoxin survey results in which more than 4,200 samples worldwide were investigated, it is clear that mycotoxins are a topic of concern in animal feed and multi-mycotoxin occurrence continues to be a threat. Constant monitoring and continued research on the prevention and mitigation of mycotoxin contamination are therefore necessary.

A first step towards preventing the negative effects of these harmful substances is the application of good agricultural practices and storage conditions. An effective mycotoxin risk management program is also important in order to protect animals from the negative effects of mycotoxins on health and performance.