Trade Losses due to Aflatoxins

- Nigeria and Senegal major groundnut exporters in 1960s. Compliance has economic incentives
  - **Senegal**: US$ 4.1 million added capital investment and 15% recurring cost would attract 30% price differential to oil cake.
  - Export would increase from 25K tons to 210K tons.
  - Increased export volume and price differential would annually add $281 million value to groundnut export for the capital investment.
  - For confectionary groundnut, adherence to Good Management Practices would increase export value by US$ 45 million annually.
  - Best quality exported; poorer quality consumed domestically.

*World Bank; Mbaye (2004)*
REPORT OF ANALYSIS

Sample: Ogi White

submitted on 28 February 2013

My opinion and observations are:

JNSATISFACTORY - Contamination

Under Commission Regulation (EC) No 1881/2006 implemented by The Contaminants in Food (England) Regulations 2010 the sample is permitted to contain a maximum of 2µg/kg (micrograms per kilogram) of aflatoxin B1 and a maximum of 4 µg/kg of total aflatoxin.

The sample had a level of aflatoxin B1 and of total aflatoxin which exceeded the maximum permitted level taking into account the correction for recovery and measurement uncertainty as shown in case (1).

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Result</th>
<th>Method Code</th>
<th>Method Recovery %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aflatoxin B1</td>
<td>7.3 ± 0.9 µg/kg</td>
<td>F/0329</td>
<td>86</td>
</tr>
<tr>
<td>Aflatoxin B2</td>
<td>0.7 ± 0.1 µg/kg</td>
<td>F/0329</td>
<td>88</td>
</tr>
<tr>
<td>Aflatoxin G1</td>
<td>0.9 ± 0.1 µg/kg</td>
<td>F/0329</td>
<td>88</td>
</tr>
<tr>
<td>Aflatoxin G2</td>
<td>Not Detected &lt; 0.1 µg/kg</td>
<td>F/0329</td>
<td>73</td>
</tr>
<tr>
<td>Total aflatoxin</td>
<td>8.8 ± 1.6 µg/kg</td>
<td>F/0329</td>
<td></td>
</tr>
</tbody>
</table>
Awareness & Advocacy

• Awareness and participation of farmers, consumers, industry and policy-makers will drive effective management of aflatoxin in the value chain.

• Comprehensive, multi-sector education and outreach initiative needed to raise awareness

• Advocacy about value of aflatoxin management and the production of safe food and feed
Some Target Groups for Awareness & Advocacy

- Policy makers - Ministries of Agriculture, Health, and Commerce
- National agriculture development programs
- Non-Government Organizations
- Producers and producer groups
- Private sector
- National and international food reserve programs
- Medical professionals
- Religious and local “traditional” leaders.
- Consumers, particularly women
Need for Mycotoxin Testing and Monitoring

• Protect consumers from undue exposure from food safety hazards
• Promote regional and international trade
  • Stringent regulatory standards in importing countries (e.g., EU)
  • Rapid Alert Reporting System globally reports food safety issues (on internet) – poor country image
• Encourage national development of agro-based economies
• Protect consumers from economic exploitation
Aflatoxin Monitoring and Rapid Alert System

- Baseline info on the extent of aflatoxin contamination
- Mapping of risk areas and intervention sites
- Essential for impact assessment of implementation of aflatoxin mitigation
- Region-wide Rapid Alert System for information and action by member states
- Conduct multi-year surveillance along value chain; large number of samples
- Two-stage: Screening with rapid inexpensive methods and confirmation with modern approved methods
Aflatoxin standards versus aflatoxin-free certification

(too?) high standards

range of aflatoxin standards (ppb)

- Asia
- Latin America
- North America
- Africa
- Europe

not implemented

range of actual aflatoxin levels (ppb)

- yam flour, Nigeria: 7,600
- peanut paste, Ghana: 3,278
- peanut sauce, Ghana: 943
- leaf sauce, Gambia: 775
- maize dough, Ghana: 313
- kenkey, Ghana: 524
- cashew paste, Ghana: 366
- peanut oil, Nigeria: 500
- local beer, Nigeria: 153

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Mycotoxin regulation in Europe & Africa

- All EU member states have regulations for 12 mycotoxins.
- 15 African countries have regulations (59% pop).
- Most countries not regulated, but say that regulations needed.
- Does not mean problem does not exist.
- For small-scale & subsistence systems regulation has failed.

Source: FAO, 2004
Challenges of Regulations in Developing Countries

- Poor regulatory and control systems
- Lack or inadequate national standards and regulations
- Informal and dispersed markets, low volume
- ~90% producers consume production at home
- Inadequate inspection and enforcement capabilities
Challenges of regulatory labs in developing countries

- Inadequate infrastructure – building, electricity, water, telecommunication, computerization
- Lack of trained personnel
- Sustainability of laboratory supplies
  - Mostly imported
  - High costs for good quality
  - High cost per test (HPLC: ~ $150, ELISA: ~ $80)
  - Reference standards – issue of biohazards and terrorism
- Instrument maintenance and repairs
  - Lack of technical expertise, reliance on overseas engineers
  - Long downtimes, low output
- QA/QC and laboratory accreditation for international acceptability
- Political will – convincing policy makers; competing needs