Aflatoxin management: Food sector perspective

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What are Consumers Demanding?

Consumers are looking for ...

- Quality and Safety of Food Products
- Specific Nutritional Composition
- Convenience and Hygiene
- Affordable Products
- Tough regulations on Norms/Standards
How is this shaping the Food Value Chain?

- Input supply (pesticide, fertilizer etc)
- Farm cultural practices
- Post-Harvest practices
- Processing and storage
- Local vs. External Norms/Standards
- Labelling and Packaging
Is West African Farming Systems positioned to meet consumer demands?

Characteristics of W. African Agriculture

- Small scale
- Low inputs
- Rain-fed Agriculture
- Poor crop yields

Food Security Issues

Food availability out-weighs food safety

- Aflatoxin
- Fumonisin
- Has direct effect on food industry and household
- Pesticides & Heavy metals
- Lack of GAP & GSP

Food availability out-weighs food safety
What are the urgent competences required to meet consumer demands?

Quality oriented training that build farmers’ capacity to ensure safety and reliability of food and raw materials

<table>
<thead>
<tr>
<th>Mycotoxin</th>
<th>Raw Material</th>
<th>Nestlé Nutrition limit ppb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aflatoxin B+G</td>
<td>Corn, rice cowpea, sorghum</td>
<td>5</td>
</tr>
<tr>
<td>Aflatoxin M1</td>
<td>milk powder</td>
<td>4</td>
</tr>
<tr>
<td>Ochratoxin (OTA)</td>
<td>corn, wheat, barley, oats, rye, rice, cocoa</td>
<td>1</td>
</tr>
<tr>
<td>Fumonisins B1+B2</td>
<td>corn, oats</td>
<td>1000</td>
</tr>
<tr>
<td>Deoxynivaleno I (DON)</td>
<td>corn, wheat, barley, oats, rye</td>
<td>500</td>
</tr>
<tr>
<td>Zearalenone</td>
<td>corn, wheat, barley, rye</td>
<td>50</td>
</tr>
<tr>
<td>Patulin</td>
<td>apple, pear*</td>
<td>50</td>
</tr>
</tbody>
</table>

Example: Aflatoxin Contamination in W. Africa

- Maize: 4000 – Benin
- Peanut: 216 – Ghana
- Sorghum: 80 – Ghana
- Millet: 200 – Nigeria
- Tiger nuts: 120 – Nigeria

Source: IITA Benin
How does Nestlé organize training in the value chain?

**WHO? WHERE? WHEN? HOW?**

- **Farmer / Field / crop**: June – October / Traditional cultural practices (high level of manual work)
- **Farmer / Field / 3 - 4 weeks**: heaps or stand alone.
- **Farmer / Field / days / manual**
- **Farmer / Farm house / days / heaps on ground or tarpaulin - manual**
- **Farmer / Farm house / 5 – 6 months / Cobs in traditional clay granary “Rumbu”**

**WHAT?**

- Growing
- Field Drying
- Harvesting
- Cobs storing in heaps, sorting and dehusking
- Cobs storage in “Rumbu”

**WHAT?**

- Good Storage Practices
- Drying time Moisture %
- Storage time Rejection % Training level

**WHAT?**

WHO ? WHERE ? WHEN ? HOW ?

Farmer / Farm house / quick / manual

Farmer / Farm house / 5 – 6 months / 100 kg PWV bags in stores of different sizes, not palletized

I ° Trader / Market / Max. 3 weeks / 100 kg PWV bags in market stores, not palletized

II ° / Market or storage area / quick / manual or mechanical

WHAT ?

Shelling, (winnowing), (bagging)

Sun drying, winnowing, bagging

Own Consumption

Home storage (long period)

Own Consumption

I ° Trading (storage at market)

II ° Trading (cleaning (manual or mechanical) & re-bagging

Good Storage Practices

Good Storage Practices
II ° Trader / Trader warehouse / Max. 3 months / 50 kg PWV bags. Possible Fumigation.

II ° Trader / Max. one month in case of problem / 50 kg PWV bags in hired truck.

Storage at II ° Trader Warehouse (long term)

Delivery to Nestlé

Good Storage Practices

Good Storage Practices
FIELD DRYING
COBS HEAPS, SORTING, DEHUSKING

Ghana: source IITA
COBS STORAGE “RUMBU”