



# Update on Legislation for Mycotoxins and New Developments

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Food Standards Agency  
Chemical Safety Division



# UK Food Standards Agency core values

- To put the consumer first
- To be open and accessible
- To be an independent voice



# Contents

- Contaminants legislation philosophy
- Mycotoxins
- What it means to industry?:
  - ▶ Sampling
  - ▶ Analysis
  - ▶ Toolbox
- Forthcoming issues



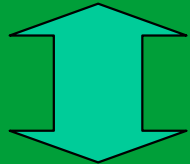
# European Food Safety Policy

- **Most food regulation comes from Europe**
- **Farm to fork approach - a general principle**
- **Consumers buy in a global market**
- **Food law establishes the right of consumers to safe food at national and EU level**

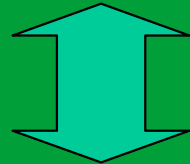


# HOW is Legislation Formulated ?

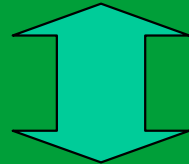
Scientific literature



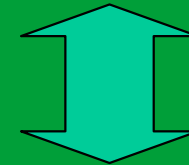
R&D



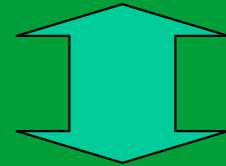
Monitoring data



Food alerts (RASFFs)

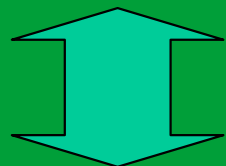


**RISK to consumers - Exposure Assessment**



Advice on  
**TOXICOLOGY**

Risk management  
Discussions at Working Group



**VOTE at Standing Committee**



# How **INDUSTRY** can Influence

- Supply data/ information
- Lobby:
  - ⇒ **Competent Authority,**
  - ⇒ **Government,**
  - ⇒ **National Associations,**
  - ⇒ **EU Associations,**
  - ⇒ **Commission.**
- **Keep informed:**
  - ⇒ **FSA Interested Parties letters**



# KEY MESSAGE 1

LOBBY !!

- Talk to competent authorities



# Contaminants Regulations

- Presence of contaminant cannot be avoided
- Limits set for those foods which contribute the most to consumer exposure
- Foods known to occur with high levels of contamination
- Foods for vulnerable groups



# Legislation for:

- **Metals (mercury, lead, tin, cadmium...)**
- **Dioxins and PCBs**
- **Process contaminants (acrylamide..)**
- **Food contact materials**
- **MYCOTOXINS**



# WHAT ARE MYCOTOXINS?

- Toxic chemicals **PRODUCED BY FUNGI** growing on foods
- Absence of mould does not mean it is safe!
- Can't see, can't smell can't taste
- **CAN** cause range of health effects: cancer, suppress immune system, retard growth...



# Regulations:

## Main mycotoxins of interest

- Aflatoxins (B1, M1, total)
- Ochratoxin A
- Patulin
- Fusarium toxins
  - Tricothecenes (Deoxynivalenol, nivalenol, HT2 & T2)
  - Zearalenone
  - Fumonisin (B1, B2, B3)

CAN occur in the field AND/OR in storage THROUGHOUT food chain



# General Food Law Regulation 178/2002

”unacceptable for human consumption for reasons of contamination by extraneous material”

**“Food and feed business operators at all stages of production, processing and distribution within the businesses under their control shall ensure that food or feeds satisfy the requirements of food law”**

- 📄 Codes of Practice, Good Manufacturing Practice
- 📄 Report incidents
- 📄 Ensuring food is compliant with the legislation  
e.g sampling and analysis



# SAMPLING

# MYCOTOXINS

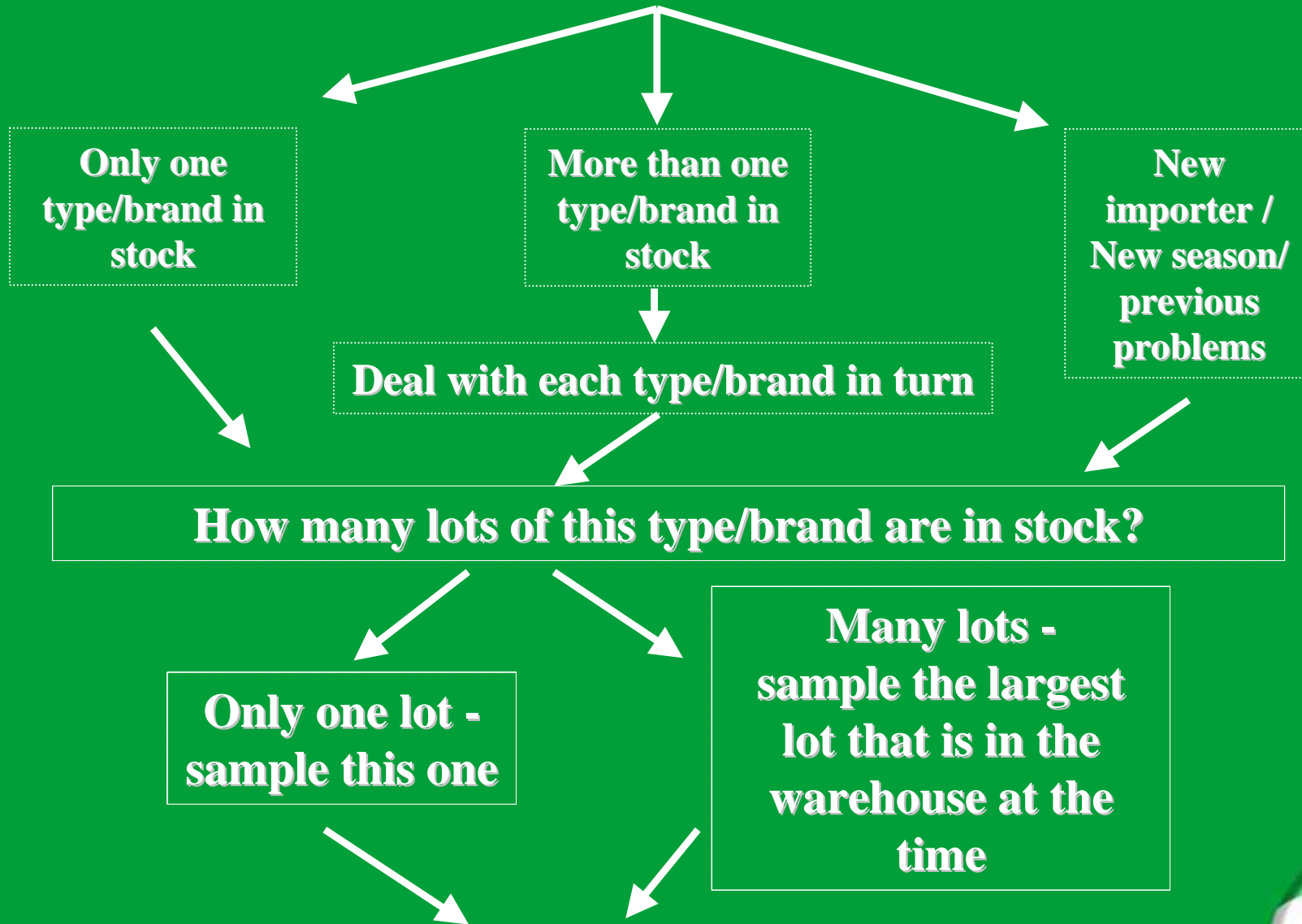


# MYCOTOXINS Sampling

- Mould grows in patches
- Heterogeneous contamination
- Hot spots
- Must take representative sample!!
  - a number of small samples
  - throughout the batch
  - at random



# Determine how many tonnes/kg/packs of interest are in stock



**Keep as much information as possible about the batch that you have sampled**



# Sampling: Worked Examples

Total Weight of Batch at Warehouse	Number of Incremental Samples to take	Packaging size	What to do
10 - 70kg	10	100gram retail packs	Take 10 retail packs taken at random from the entire batch
130kg	15	400gram retail packs	Take the minimum number of packets required to make up the aggregate weight. In this case this is 1.5kg; so take 4 packs*
160kg	15	10kg sacks	Take 1 scoop of ~100grams from 15 different sacks to give 15 incremental samples.
8 tonnes	80	25kg sacks	Take 1 scoop of ~100grams from 80 different sacks to give 80 incremental samples.

\* In this case a special dispensation is applied to ensure that not more than 10% of the lot is taken for sampling purposes.



# KEY MESSAGE 2

- Sampling is essential
- Must be representative
- 1 packet NOT enough



# ANALYSIS



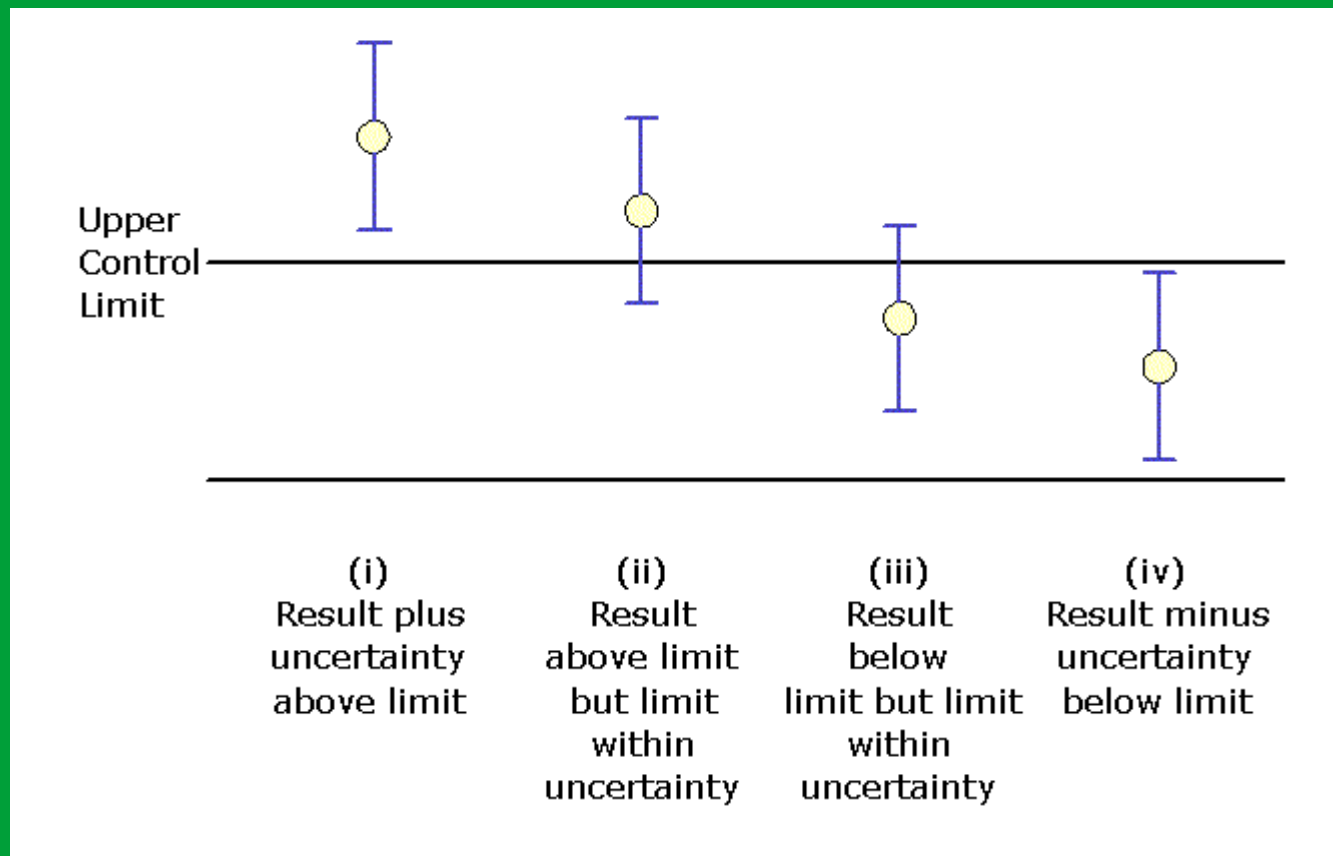
# OFFICIAL CONTROL OF MYCOTOXINS ANALYSIS

- Method of analysis used must comply with the performance parameters specified in Directive 98/53
- The analytical result can be reported corrected or uncorrected for recovery
- The analytical result corrected for recovery and minus the measurement of uncertainty is used to check compliance



# Measurement Uncertainty

- All analytical results have a variability known as the measurement uncertainty. The Eurachem/CITAC interpretation of the definition of measurement uncertainty is “the range of values that the analyst believes could be reasonably attributed to the measurand”



Action:	Reject	Accept	Accept	Accept
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# KEY MESSAGE 3

- Accredited lab
- Results:
  - corrected for recovery
  - minus measurement of uncertainty (i.e. benefit of the doubt)



# TOOLBOX

## **CONTAMINANTS LEGISLATION – limits:**

[http://europa.eu.int/comm/food/food/chemicalsafety/contaminants/index\\_en.htm](http://europa.eu.int/comm/food/food/chemicalsafety/contaminants/index_en.htm)

**SAMPLING** - Commission Guidance Document for enforcement authorities for the control of compliance with EU legislation on aflatoxins:

[http://europa.eu.int/comm/food/food/chemicalsafety/contaminants/aflatoxin\\_guidance\\_en.pdf](http://europa.eu.int/comm/food/food/chemicalsafety/contaminants/aflatoxin_guidance_en.pdf)

## **Other relevant Legislation:**

Official Food and Feed Regulations (OFFC) – 882/2004

[http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2004/l\\_191/l\\_19120040528en00010052.pdf](http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2004/l_191/l_19120040528en00010052.pdf)

Food Law - 178/2002 :

[http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l\\_031/l\\_03120020201en00010024.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_031/l_03120020201en00010024.pdf)



# Forthcoming Issues



# EU LEGISLATION ON FUSARIUM TOXINS I

- Into force on 1 July 2006.
- Unprocessed cereals, flour, but not malting barley to final consumer products.
- “Unprocessed cereals” are cereals placed on the market for first-stage processing.
- “First-stage processing” shall mean any physical or thermal treatment.



# EU LEGISLATION ON FUSARIUM TOXINS II

- Cleaning and sorting procedures are **not** considered “first stage processing”. If no physical action is exerted on the grain kernel itself and the whole grain remains intact after cleaning and sorting.
- Fumonisin - 1 July 2007
- T2 and HT2 still to come



# Under Discussion

- Harmonised guidance on EU controls
- Article 15(5) of 882/2004 - list of high risk
- Streamlined sampling Regulations
- Maximum limits for ochratoxin A spices and cocoa
- Consolidated Contaminants Regulations
- Codes of Good Agricultural practice
- More Guidance



# SUMMARY

- Responsibility
- Can influence the legislation
- Sampling **MUST** be representative
- Analysis corrected for recovery,  
measurement of uncertainty



**Any other points?**



# THE FUTURE?



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