



**Directorate-General for  
Health & Consumers**

# **AFLATOXIN CONTAMINATION IN MAIZE IN 2012 - 2013**

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# Findings of aflatoxins in maize in 2012-2013

- \* Several RASFF notifications on high levels of aflatoxin in maize intended for feed originating mainly from South (- East) Europe
- \* High levels of aflatoxins in maize due to extreme weather conditions in maize growing season 2012 in certain part of Europe.
- \* The following issues were identified in these contamination incidents

# Issues

Following issues were highlighted and discussed:

\* the heterogeneous distribution of the aflatoxin contamination and the representativeness of the samples taken (especially of large lots) → variability of the aflatoxin results

- **Between several samples taken from the same (large) lot**
- **Between samples taken from the same lot (or parts of the lot) but at different stages in the distribution chain**

\* transparency of the findings on a lot in the distribution chain  
// non-timely notification of non-compliance by the operators in the chain.



# Notification of non-compliance

Late or no notification of the feed business operator (trader) of non-compliance of a consignment of maize, is a non-compliance with Article 20 of the Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing European Food Safety Authority and laying down procedures in matters of food safety.

# Early warning

As regards an early warning:

- \* the problem of increased presence of aflatoxins in maize from South East Europe was already known and discussed in meeting of the Standing Committee in September 2012.
- \* It was stressed increased vigilance as regards the presence of aflatoxins in maize originating from South East Europe is absolutely necessary.
- \* the (first) RASFF notification end of December 2012.

# Sampling procedures

As regards sampling by the feed business operator (trader) it is important that sufficient incremental samples are taken from the lot to ensure a high level of representativeness

Different sampling procedures are available (established by legislation, standardisation bodies, GAFTA, ...)

- \* Regulation (EC) 152/2009 (feed)
- \* Regulation (EU) 691/2013 of 19 July 2013 amending Regulation (EC) 152/2009 (feed)
- \* Regulation (EC) 401/2006 (food)
- \* EN/ISO Standard 24333 on sampling of cereals and cereal products
- \* Gafta 124 Sampling Rules

# Sampling procedures for the control of aflatoxins in maize (large lots)

## \* Regulation (EC) No 152/2009 (feed)

- minimum number of incremental samples:  $\sqrt{20}$  times the number of metric tons making up the sampled portion up to a maximum of 40 incremental samples
- size aggregate sample: minimum 4 kg
- number of aggregate samples: minimum 4
- one final sample (minimum 0,5 kg) per aggregate sample to be analysed

# Sampling procedures for the control of aflatoxins in maize (large lots)

## \* Regulation (EU) No 691/2013 (feed)

- minimum number of incremental samples: minimum 100  
For lots > 500 tonnes 100 incremental samples +  $\sqrt{\text{tonnes}}$
- size of incremental sample: at least 100 grammes
- size aggregate sample: minimum 4 kg
- aggregate sample to be completely homogenised or reduced to at least 2 kg before homogenisation
- final sample to be taken from the homogenised part: minimum 0,5 kg
- large lots: part of the lot can be sampled





# Sampling procedures for the control of aflatoxins in maize (large lots)

## \* Regulation (EU) No 401/2006 (food)

- minimum number of incremental samples: minimum 100
  - size of incremental sample: 100 g
  - size aggregate sample: minimum 10 kg
  - complete aggregate sample to be homogenised
- For lots >> 500 tonnes: under discussion

# Sampling procedures for the control of aflatoxins in maize (large lots)

## \* EN/ISO 24333:2009

### Flowing grain:

- 25 incremental samples of 300 to 1900 grammes per 1500 tonnes
- Laboratory sample minimum 10 kg

### Static grain

- 25 incremental samples of 400 to 3000 grammes for lots > 500 tonnes or per 1500 tonnes.
- Laboratory sample of 10 kg

# Sampling procedures for the control of aflatoxins in maize (large lots)

## \* GAFTA 124 sampling rules

- 20 kg of increments for each 500 tonnes up to 5000 tonnes and over the 5000 tonnes on the basis of 10 kg for each 5000 tonnes
- Each increment sample should not exceed 1 kg
- Weight of the sample sent to laboratory: 3 kg
- Number of samples to be sent to laboratory: 1 per 5000 tonnes
- When the contractual quantity is represented by more than one sample, the analyst shall mix the samples together in proportion to the weight represented by each sample

# Managing variability of results

As regards the variability of the presence of aflatoxins in a lot of maize:

- \* the importance of representative sampling cannot be enough underlined (see above).
- \* variability of results within one lot
- \* Furthermore, lots with significant presence of aflatoxins at levels compliant with legislation (i.e.  $< 20 \mu\text{g}/\text{kg}$  aflatoxin B1), it is recommended to use this maize preferably for production of feed for non-dairy animals or only at low incorporation rates in feed for dairy animals.

## Fate of non compliant lots (feed)

- \* Maize non-compliant with the EU maximum level cannot be used as such for the production of feed.
- \* Such maize can eventually be **decontaminated by a chemical treatment**, but in these cases it is prudent not to use the decontaminated maize for the production of feed for dairy animals.

## Fate of non-compliant lots (feed)

- \* In the case of non-compliance of very large lots of maize, if in case following an intensive sampling procedure it can be demonstrated that certain parts of the large consignment are compliant with EU legislation, this part can be following agreement by the competent authority be used for the production of feed.
- \* Also in these cases it is prudent to use this maize for the production of feed of non-dairy animals or to use it only at low incorporation rates in feed for dairy animals.

## Fate of non-compliant lots (feed)

\* In the case of non-food and non-feed use of non-compliant lots of maize → special attention has to be paid that the by-product does not enter as such the feed and food chain (eventually only after chemical treatment).



**Thank you for your  
attention !**