

# **EU- provisions on Fusarium-toxins and ochratoxin A in food and feed**



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# OUTLINE PRESENTATION



- Specific provisions on Fusarium-toxins and OTA in food
- Specific provisions on Fusarium-toxins and OTA in feed
- Reason for this meeting
- Conclusions

# Community legislation in application of 315/93



- **Commission Regulation (EC) No 466/2001 of 8 March 2001 setting maximum levels for certain contaminants in foodstuffs.**
  - Maximum level applies to the edible part
  - For dried, diluted, processed or compound foodstuffs: concentration/dilution factor, relative proportion (exception aflatoxins)
  - Maximum level established for food for direct human consumption also applies to products used as food ingredient
  - prohibition of mixing contaminated with non contaminated consignments and prohibition of detoxification by chemical treatment (mycotoxins)

# Maximum levels- Food Ochratoxin A (OTA)



**Raw cereal grains: 5 µg/kg**

**All products derived from from cereals (including processed cereal products and cereal grains intended fot human consumption): 3 µg/kg**

# Provisions

## *Fusarium*-toxins - Food



- Deoxynivalenol, zearalenone, fumonisins B1 & B2 and T-2 & HT-2 toxin
- For the purpose of the application of the MLs for *Fusarium*-toxins, rice is not included in “cereals” and “cereal products”
- Mixing non-complying products with complying products is prohibited and also chemical decontamination is prohibited
- Measures applicable from 1/07/2006
- No maximum levels for nivalenol, 3-AC-DON, 15-AC-DON

# Provisions

## *Fusarium*-toxins - Food



- Unprocessed cereals : cereals marketed for first stage processing
- First-stage processing: any physical or thermal treatment , other than drying, of or on the grain (cleaning, sorting and drying not considered as first stage processing insofar no physical action is exerted on the grain kernel itself and the whole grain remains intact after cleaning and sorting)
- Review of provisions foreseen by 1 July 2008

# Maximum levels - Food *Fusarium*-toxins – DON



- Deoxynivalenol (DON)
  - unprocessed cereals with the exception of durum wheat, oats and maize: 1250 µg/kg
  - Unprocessed durum wheat and oats: 1750 µg/kg
  - Unprocessed maize: for the time being no ML – eventually 1750 µg/kg applicable from 01/07/2007 onwards if no maximum level has been established in the meantime
  - Cereal Flour, including maize flour, maize grits and maize meal and similar products such as semolina *and bran marketed for direct human consumption and germ*: 750 µg/kg

# Maximum levels - Food *Fusarium*-toxins – DON



- Deoxynivalenol (DON)
  - Bread, pastries, biscuits, cereal snacks and breakfast cereals: 500 µg/kg
  - Pasta (dry) 750 µg/kg
  - Processed cereal based food for infants and young children and ingredients for the manufacture of these products: 200 µg/kg



# Maximum levels - food

## *Fusarium*-toxins - ZEA



- Zearalenone

- unprocessed cereals with the exception of unprocessed maize: 100 µg/kg
- unprocessed maize: for the time being no ML – eventually 200 µg/kg applicable from 01/07/2007 onwards if no maximum level has been established
- Cereal Flour, except maize flour: 75 µg/kg
- Maize flour, maize meal maize grits and refined maize oil: for the time being no ML – eventually 200 µg/kg applicable from 01/07/2007 onwards if no maximum level has been established in the meantime

# Maximum levels - food

## *Fusarium*-toxins - ZEA



- Bread, pastries, biscuits : 50 µg/kg
- Maize snacks and maize based breakfast cereals: for the time being no ML – eventually 50 µg/kg applicable from 01/07/2007 onwards if no maximum level has been established in the meantime
- Other cereal snacks and breakfast cereals: 50 µg/kg
- Processed maize based food for infants and young children and ingredients for the manufacture of these products: for the time being no ML – eventually 20 µg/kg applicable from 01/07/2007 onwards if no maximum level has been established in the meantime
- Other processed cereal based food for infants and young children and ingredients for the manufacture of these products: 20 µg/kg

# Maximum levels - Food *Fusarium*-toxins – FB1 + FB2



- Fumonisin B1 + B2
  - No maximum level established for the time being – if no specific level is fixed before 1 October 2007, the following levels will apply:
    - unprocessed maize: 2000 µg/kg
    - Maize grits, maize meal, maize flour and refined maize semolina: 1000 µg/kg
    - maize based foods for direct human consumption: 400 µg/kg
    - maize based food for infants and young children and baby food: 200 µg/kg (on dry matter basis)

# Maximum levels - Food

## *Fusarium*-toxins: T-2 + HT-2



- T-2 + HT-2 toxin
  - Reliable occurrence data very limited
  - Occurs in particular in oats
  - No internationally validated methods of analysis
  - For the time being no ML proposed
  - Foreseen to, if appropriate, to establish maximum levels for T-2 and HT-2 toxin by 01/07/2007

# Recommendation Prevention *Fusarium*-toxins



- Draft Recommendation on the prevention and reduction of *Fusarium* – toxins in cereals and cereal products
  - Risk factors to be considered for inclusion in Good Agricultural Practices (GAP)
  - Contamination by *Fusarium*-toxins of cereals can be imputed to multiple factors
  - integrated approach addressing in a reasoned way all possible risk factors taking into account the local situation

# Mycotoxins - Feed



- EFSA opinions on deoxynivalenol (2 June 2004), zearalenone (28 July 2004), fumonisins (22 June 2005), ochratoxin A (22 September 2004)
- Animal health effects critical effects – impact public health minor as carry-over from feed to food is limited
- Two-step approach: Recommendation on increased monitoring combined with guidance/orientation values as first step – evaluation in 3-4 years time to consider possible further legal measures in the frame of Directive 2002/32/EC

# Mycotoxins - Feed Recommendations



- With the active involvement of feed business operators, monitoring for the presence of deoxynivalenol, zearalenone, ochratoxin A and fumonisin B1+B2, T-2 and HT-2 toxin in cereals and cereal products intended for animal feeding and compound feedingstuffs should be increased.
- Samples are simultaneously analysed for the presence of deoxynivalenol, zearalenone, ochratoxin A, fumonisin B1+B2 and T-2 and HT-2 toxin to allow the extent of co-occurrence to be assessed.

# Mycotoxins - Feed Recommendations



- particular attention to be paid to the presence of those mycotoxins in by- or co-products from the production of food intended for animal feeding
- the analytical results are to be provided on a regular basis to the Commission for compilation into a single database.
- it should be ensured that the guidance values are applied for judging the acceptability of compound feed and cereal and cereal products for animal feeding.



# Mycotoxins - Feed Recommendations



- feed business operators use in their Hazard Analysis and Critical Control Points (HACCP) system the guidance values to determine the critical limits at critical control points which separate acceptability from unacceptability, for the prevention, elimination or reduction of identified hazards.
- In applying these guidance values, it should be taken into account that the guidance values for cereals and cereal products have been determined for the most tolerant animal species and are therefore to be considered as upper guidance values.
- For feed for more sensitive animals, it should be ensured that lower guidance values for cereals and cereal products are applied by feed manufacturers taking into account the sensitivity of the animal species and enabling compliance with the guidance values determined for compound feedingstuffs for these animal species.

# Deoxynivalenol (DON)

## EFSA opinion



- EFSA opinion
  - Foods of animal origin contribute only marginally to total human DON exposure
  - Pigs most sensitive (0.35 – 0.9 mg/kg reported as negative effect on feed intake)
  - Healthy adult ruminants most tolerant to DON

# Mycotoxins - Feed Deoxynivalenol



- Recommended guidance values (relative to a feedingstuff with a moisture content of 12 %)
  - Cereals and cereal products 8 ppm
  - Maize by-products 12 ppm
  - Complementary and complete feed: 5 ppm
    - Except for pigs 0.9 ppm
    - Except for calves lambs and kids 2 ppm

# Zearalenone (ZEA) EFSA opinion



- EFSA opinion
  - Foods of animal origin contribute only marginally to total human ZEA exposure
  - Female pigs most sensitive
  - Sheep also quite sensitive
  - Cattle less sensitive
  - Poultry: not sensitive

# Mycotoxins - Feed Zearalenone



- Recommended guidance values (relative to a feedingstuff with a moisture content of 12 %)
  - Cereals and cereal products 2 ppm
  - Maize by-products 3 ppm
  - Complementary and complete feed:
    - For piglets and gilts (young sows) 0.1 ppm
    - For sows and fattening pigs 0.25 ppm
    - For calves, dairy cattle, sheep including lamb) and goats (including kids) 0.5 ppm

# Ochratoxin A (OTA) EFSA opinion



- EFSA opinion
  - Foods of animal origin contribute only to a minor extent to total human OTA exposure
  - Pigs most sensitive
  - Poultry: also sensitive

# Mycotoxins - Feed ochratoxin A (OTA)



- Recommended guidance values (relative to a feedingstuff with a moisture content of 12 %)
  - Cereals and cereal products **0.25 ppm**
  - Complementary and complete feed:
    - For pigs **0.05 ppm**
    - For poultry **0.1 ppm**

# Fumonisin

## EFSA opinion



- EFSA opinion
  - Carry-over of fumonisins from animal feeds into edible tissues, including milk and eggs limited and consequently products of animal origin do not contribute substantially to human exposure
  - Fumonisin exhibit toxic effects in all animal species
  - Pigs and horses the most sensitive animal species
  - Also rabbits sensitive
  - Broilers - NOAEL of 2 mg/kg bw/day
  - Adult ruminants not sensitive



# Mycotoxins - Feed Fumonisin B1 + B2



- Recommended guidance values (from 1 October 2007 onwards) (relative to a feedingstuff with a moisture content of 12 %)
  - **Maize and maize products** **60 ppm**
  - **Complementary and complete feed:**
    - For pigs, horses, rabbits and pet animals **5 ppm**
    - Fish **10 ppm**
    - Poultry, calves lambs and kids **20 ppm**
    - Adult ruminants and mink **50 ppm**

# Mycotoxins - Feed Guidance values



- Attention has to be paid to cereals and cereal products fed directly to the animals that their use in a daily ration should not lead to the animal being exposed to a higher level of these mycotoxins than the corresponding levels of exposure where only the complete feedingstuffs are used in a daily ration
- Cereals and cereal products include all feed materials derived from cereals in particular also cereal forages, silages and roughages
- Maize and maize products include all feed materials derived from cereals in particular also maize forages, silages and roughages

# Mycotoxins - Feed Future



An assessment of the approach provided for by this Recommendation should be undertaken by 2009 in particular to assess its contribution towards protecting animal health. The monitoring data obtained as a result of this Recommendation will also enable a better understanding of the year-to-year variance and the presence of these mycotoxins in the wide range of by-products used for animal feed, which is of primary importance for taking, if necessary, further legislative measures.

# Mycotoxins - Feed Conclusions



- \* Future in your hands
- Workshop aimed to discuss all issues related to the monitoring of mycotoxins in cereals and cereal products and compound feedingstuffs
- Clarify issues on sampling and analytical methodology and reporting of data // template
- First follow-up workshop June 2007

# Mycotoxins - Feed Conclusions



Questions ?  
Comments ?