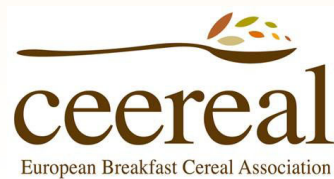


## **5th Mycotoxin Forum**

**Brussels, 10 January 2008**



# T2/HT2 Research Project

## CEEREAL Background

- **CEEREAL is the trade association for the EU breakfast cereal and oat milling industries**
- **CEEREAL's members are the national breakfast cereal and oat milling associations in 12 EU member states**
- **Through its Oat Millers' Committee, OMC, CEEREAL represents the oat milling industry in UK, Ireland, Germany, Denmark, Sweden and Finland**

# T2/HT2 Research Project

## Oats

- Oats rank 6<sup>th</sup> in world cereal production following wheat, rice, maize, barley & sorghum
- The value of oat production is approximately 6% of the global cereal production
- USA & Russia are the biggest producers of oats
- Oats are adapted to the cold climate of northern countries

# T2/HT2 Research Project

## Oat Production 2006

- **EU oat crop 2006 – approximately 7.6 million tonnes**
- **Biggest producers – Finland and Poland – each with approximately 1 million tonnes**
- **1990-91 – 74% used for animal feed with remaining 22% for seed and human consumption**
- **The total amount of the crop used for human food in the UK has risen from 28% to 52%**

# T2/HT2 Research Project

## Quality Criteria for Milling Oats

- **oat milling requirements** (Zechner, 2001)
  - high value of entire oat (riddle sorting > 2,0 mm)
  - Increasing economic importance and value of hulls
  - easy to dehull
  - light colour
- **quality components** (Schönberger and Kropf, 2000)

• value of entire oat:	min.	99 %
• weight of hectolitre:	min.	54 kg
• weight of thousand grains:	min.	30 g
• value of hulls:	under	26 %
• humidity of grains:	max.	15 %

# T2/HT2 Research Project

## Consumption data for infants

### Germany

oats: 3,1 g/day (97,5 percentile: 64,3 g/day)  
cereals: 90 g/day (VELS-Study, Banasiak et al., 2005)  
oat flakes: 40 g/day (Kersting M., 2001)

Norway (6 years)  
(Norkost, 1997)

oat: 6,2 g/day  
rye: 13 g/day  
wheat: 180 g/day

Great Britain (1,5 - 4,5 years)  
(Gregory et al. 1990, 1992)

4,1 g/day  
2,0 g/day  
47 g/day

# T2/HT2 Research Project

## Consumption data for adults

### Germany

wheat: 171 g/day (assessment for the EU, 1999 Landesanstalt für Ernährung Bayern)

cereals and cereal products: 310 g/Tag (FAO, 2003)

portion of breakfast cereals: 30 g

### Norway (16-29 years)

(Langseth, 2000)

oat: 7,5 g/day

rye: 15 g/day

wheat: 280 g/day

### Great Britain (16-64 years)

(Gregory et al. 1990, 1992)

12 g/day

7,4 g/day

130 g/day

# T2/HT2 Research Project

## Preparatory Work

- HGCA meeting in December 2006 in London
- EU Commission Mycotoxin Forum in January 2007 in Brussels
- → CEEREAL gave a presentation “T-2 and HT-2 toxin in oats”
- Met with Prof. Gareis in February 2007 to discuss aim and scope of possible study
- Oat Millers’ Committee gave final go-ahead in June 2007, first samples were analyzed in August 2007



# T2/HT2 Research Project

## Other Studies

OMC is aware of and supports the different research projects currently being undertaken in Europe on T2/HT2, e.g.

- **Harper Adams University, UK**
  - **HGCA: Improved risk assessment to minimise fusarium mycotoxins in harvested oats**
  - **2007-2009**
- **Finnish Food Safety Authority Evira**
  - **research into the modes of action of mycotoxin compounds in grains produced by the common Fusarium fungi**
  - **2008 – 2011**
- **German Agency for Agriculture and Food (coordinator)**
  - **Improvement and validation of analytical methods for T-2 and HT-2 toxins as well as occurrence of these mycotoxins in food products in the German market**
  - **1 Jan 2006 – 31 Dec 2008**

# T2/HT2 Research Project

## Aim and Scope of study

- Evaluation of the level of T2/HT2 in oat flakes, oats and oat by-products
- Distribution of T2/HT2 in raw oats, oat flakes and by-products
- Reduction rate oats, oat flakes and by-products
- Level of T2/HT2 in flakes of different origin

# T2/HT2 Research Project

- **700 samples/year over 2 years → total of 1.400 samples**
  - **630 samples from UK**
  - **630 samples from Germany**
  - **100 samples from Finland**
  - **40 samples from Ireland**
- **Analysis method: LC-MS/MS**

# T2/HT2 Research Project

- Analyzing lab: Gesellschaft für Bioanalytik Hamburg mbH (GBA)
- Sampling protocol based on Reg. 401/2006

Sampling for flakes (A.4. of Annex I of Reg. 401/2006)

$$\rightarrow n = \frac{30000 \text{ kg} * 0,1 \text{ kg}}{1,5 \text{ kg} * 0,5 \text{ kg}} = 4000$$

one sample each 4000 pieces (100 g)

- Sampling for distribution and reduction (example)
  - oats (daily production input, eg. 100 t)
  - 7 sub-lots each 14 t
  - 60 incremental samples each 100 g
  - 7 samples of 6 kg

# T2/HT2 Research Project

## Current status of the study

- ca. 250 samples have already been analyzed

## Next steps

- Presentation of current findings of ongoing study at the 5th Mycotoxin Forum on 10 January 2008 by Prof. Pettersson
- Continuation of sampling and analysis through 2008
- Final report can be expected for 6th Mycotoxin Forum early 2009