

Occurrence of T-2 and HT-2 toxin in duplicate diets in the Netherlands 1976-2004

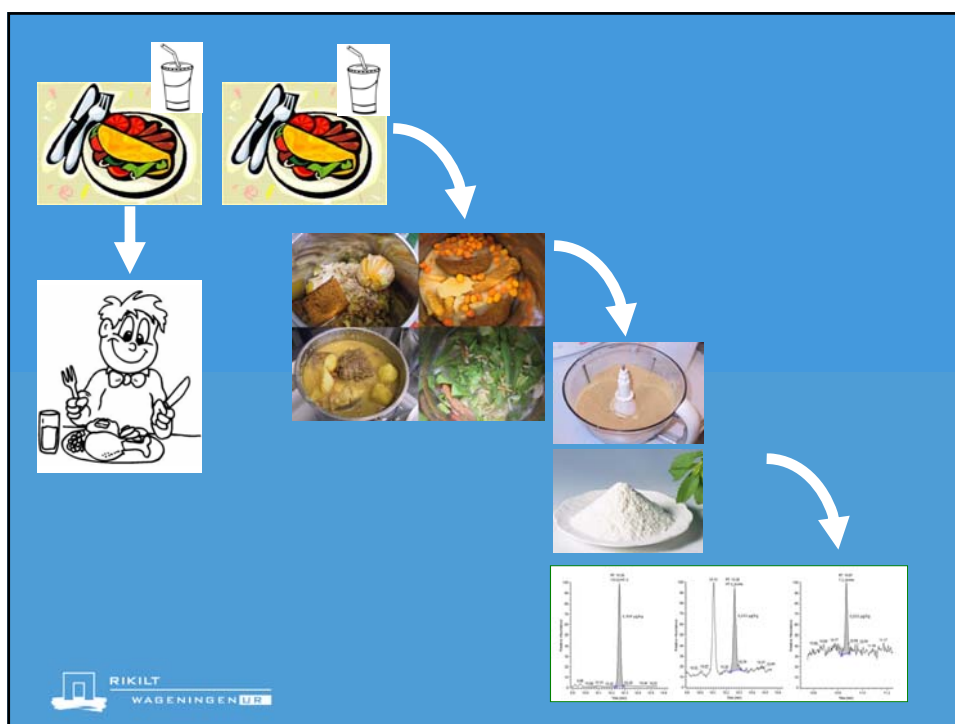
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Working group on *Fusarium*; February 3, 2012



Collection of duplicate diets

- Duplicate diets collection and analysis commissioned by the Netherlands Food and Consumer Product Safety Authority (NVWA);
- Collection of duplicate diet (eat and drink) in a 24 hours period; cooling (dry-ice); freeze drying;
- Collections: 1976-2011; 10 year interval;
 - Adults; children 2-6 years only in 2006;
 - Accompanied by diet booklet;
 - 1 week collections in spring and autumn;
 - Approx. 60 participants per week;
 - Optimal administration since 2004





Analysis of duplicate diets

- Nutrients:
 - Fat, protein, energy, carbohydrates;
- Contaminants:
 - Heavy metals;
 - Acrylamide;
 - Nitrite;
 - Pesticides;
 - Mycotoxins (Ochratoxin; T-2/HT-2 toxin; Aflatoxin; DON; Fumonisin);
 - Plant toxins (PAs).
- ➔ Exposure assessment

Analysis T-2/HT-2 for exposure assessment

- In 2009 mycotoxins: T-2/HT-2 reported as < LOQ;
- Development of GC-MS method:
 - Pooled duplicate diet samples 1976-2006;
 - Internal standard $^{13}\text{C}_{22}$ HT-2;
 - Extraction acetonitrile/water (84/16 (v/v));
 - Cleanup MycoSep#227 & MycoSep#216 (*Romer Labs*);
 - 2nd cleanup Easy-extract T-2 & HT-2 (*R-Biopharm AG*);
 - Silylate with TriSil TBT (15 min at 20°C);
 - GC-MS in SIM mode;



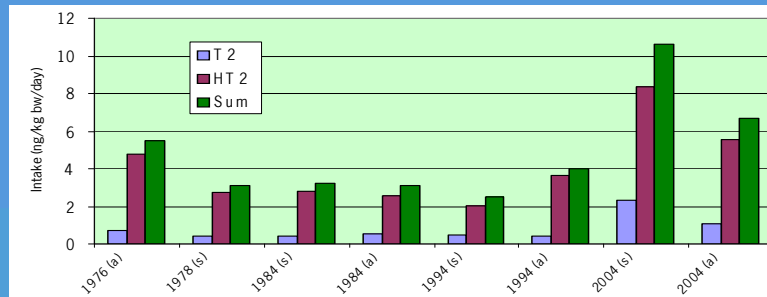
Results T-2/HT-2 toxin-2006 children (2-6 y)

Year	Season	No of respondents	T-2 (µg/kg)	H-T2 (µg/kg)	Sum of T-2 & HT-2 (µg/kg)
2006	Spring	62	0.060 Range <0.010-0.431	0.195 Range 0.073-0.544	0.255 Range 0.088-0.985
2006	Autumn	61	0.071 Range 0.010-0.398	0.156 Range 0.060-0.431	0.227 Range 0.070-0.829

- 5% of intake by children exceeds TDI SCF (&JECFA) (60 ng/kg BW/Day)



Results T-2/HT-2 toxin adults (1976-2004)

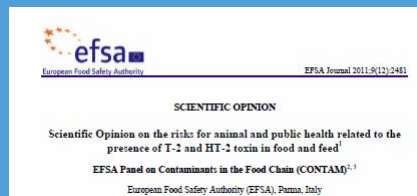


- 0% of intake by adults exceed TDI SCF (&JECFA) (60 ng/kg BW/Day) or TDI EFSA (2011) (100 ng/kg BW/Day);
- Increasing trend ?



Results

- Advice of Netherlands Food and Consumer Product Safety Authority (NVWA) December 12, 2011;
- EFSA Scientific Opinion on the risks for animal and public health related to the presence of T-2 and HT-2 toxin in food and feed December 19, 2011



Discussion

Increase of T-2 / HT-2 intake over the years?

- Increase in quantity consumed for adults. For children unknown;
- Increase in:
 - use of oats (slow release of energy)
 - use of whole cereal products;
- More analyses / methods with lower LOQ;
- Increase in T-2 /HT-2 in cereals?

Conclusions

Based on duplicate diets study in The Netherlands 1976-2006:

- No need for immediate intervention in The Netherlands;
- Need for monitoring occurrence of T-2 / HT-2 in cereals (related to climate or agricultural practice);
- Need to monitor T-2/HT-2 in duplicate diets (2011 samples will be analysed in The Netherlands);
- Need to monitor intake of cereals.

Thank you for
your attention

Questions?

