



euromaisiers

6th FUSARIUM TOXIN FORUM
Brussels, 9th-10th February

**Regulation and the
occurrence of T2 and HT2
in maize and maize products**

Karl Stuart
Vice-Chairman Technical Committee



euromaisiers

**Euromaisiers represents
the European dry maize
milling industry**

Background

- Main markets for maize products are: cornflakes industry; breweries; snack sector; food ingredients
- Processing mainly French, Italian, Argentinean and Brazilian maize
- Alternative sourcing of maize is NOT a possibility –CONTRACT GROWTH to secure non-GMO supplies already reduces flexibility

Mycotoxin data

- Collected from the members of Euromaisiers in Germany, France, Netherlands, Belgium, UK, France, Spain Italy and Poland.
- Cover DON, Zearalenone , Fumonisin and T2/HT2 in maize delivered to millers and products produced by millers - grits, flour and animal feed.
- A large number of test results, from both raw maize and milled products

Monitoring T2 and HT2 (1)

- Euromaisiers members have carried out a monitoring for the mycotoxins T2 and HT2 over the past ten years. The data have been collected from several companies using maize from different geographic locations and over several different harvest years.
- The main sources relate to maize from France, Argentina and to a lesser extent Italy and Brazil.

Monitoring T2 and HT2 (2)

- In general the levels found have been low – the overwhelming majority below the limit of quantification. Results on the next two slides.
- Although some data were collected in paired samples, the presence of T2 and HT2 was not sufficiently high to make any assessment of the effect of processing.

Annual variation in T2 and HT2 limits in maize

Maize					
Harvest year	Samples (n)	<50ppb	50-100ppb	100-200ppb	200-300ppb
1999-2003	47	47	0	0	0
2004	24	18	4	2	0
2005	56	52	2	2	0
2006	128	121	4	3	0
2007	17	13	2	0	2
2008	36	35	1	0	0
Total	308	286	13	7	2

Annual variation in T2 and HT2 in maize grits, flour and animal feed co-product

Harvest year	Maize Grits			Maize flour			Animal feed		
	(n)	<50 ppb	50-100ppb	(n)	<50 ppb	50-100ppb	(n)	<50 ppb	50-100ppb
1999-2003	51	51	0	56	56	0	34	34	0
2004	19	19	0	21	20	1	0	0	0
2005	23	23	0	20	20	0	6	1	5
2006	49	49	0	46	45	1	2	1	1
2007	7	7	0	10	10	0	0	0	0
2008	30	30	0	28	28	0	0	0	0
Total	179	179	0	181	179	2	42	36	6

What do the data tell us...?

- Levels in the human food components (grits and flour) appear to be consistently low.
- There appears to be a tendency towards higher level in the animal feed co-product stream, which would suggest that the milling process concentrates mycotoxins in this stream.

Conclusions and recommendation for T2/HT2

- In the view of Euromaisiers members, the data do not at this stage justify the establishment of maximum limits for T2 and HT2 in maize or maize products. It is also not possible to quantify the effect of processing
- In any event, consumer exposure would appear to be low
- If legislative limits are required, they should be restricted to the cereals concerned, excluding maize.



euromaisiers

Existing legislation
Our experience

Experiences (1)

- Variation in types of mycotoxin and mycotoxin levels between regions. Even with application of best practices maize from some regions does not comply with the limits for one mycotoxin or another.
- There have been no improvements in mycotoxin reduction in milling process. Removal of undesirable fractions of raw maize already a standard procedure

Experiences (2)

Some Snack-producing customers have special requirements (lower commercial requirements) because of insufficient loss and/or dilution in their processes to meet the official limits in place. This is not a general trend.

Experiences (3)

- Snack industry problems do not appear to be a general trend;
- Not all snacks producers have special mycotoxin requirements.
- Those using over 70 % of maize flour in their recipe however are experiencing this problem (e.g. tortilla (taco) chips producers) because not enough dilution and no reduction due to processing techniques

Suggestion for improvements

Suggestion for improvements :

Increasing the limits on some snacks that have insufficient mycotoxin reduction in their production process (as was done for the category of the pasta-products)

Possible pitfalls (1)

- **It is not an option to change limits on raw maize or products of the milling industry:**
 - It is already a challenge for growers to meet the current legal limits , because of influences that are outside the growers control
 - The milling process does not destroy mycotoxins; it just distributes them over outgoing products

Possible pitfalls (2)

- Products made for the food industry by the milling industry have already been optimised for the lowest possible content of undesirable parts of the grain and foreign material. No further cleaning steps can be introduced

Conclusion: Reduction of limits would lead to unnecessary restrictions (= costs) for unprocessed grains and products of the milling industry