



Outcome of the FEFAC data collection on T-2/HT-2 in feed materials and compound feed

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FEFAC in a nutshell

- Created in 1959
- Industrial compound feed and premixtures manufacturers
- 26 Members:
 - 22 Member Associations from 21 EU Member States
 - 3 Observer members (Turkey, Serbia, Russia)
 - 3 Associate Members (FHL, EMFEMA, Switzerland)
- Represents 60% of the EU compound feed production
- 7 Technical committees to assist the FEFAC Council
 - Animal Nutrition
 - Industrial Compound Feed Production
 - Premix & Mineral Feed
 - European Feed Manufacturers Guide (EFMC)
 - Fish Feed
 - Milk Replacers
 - Sustainability

FEFAC data collection on T-2/HT-2

- Source: FEFAC Member Associations and companies from 7 countries
 - Collective monitoring plan: UK, FR, DE, BE
 - Company auto-controls: ES, IT
 - Official monitoring plan: SE and FI
- Analytical method:
 - Mostly ELISA and HPLC until 2007
 - HPLC and GCMS until 2009
 - LCMS since 2009
- Type of feed:
 - Cereals: all
 - Cereals by-products: mostly wheat feed and oat feed (EU origin)
 - Other feed materials: oilseed meals, fruit pulps
 - Compound feed: pig, poultry, some horse
- Period 2006-20012

Breakdown of data by countries

	T-2+HT-2			
	Cereals	Cereals by-products	Other feed materials	Compound feed
Sweden	0	0	0	18
Belgium	517	517	212	547
France	222	29	23	59
Spain	16	14	0	4
UK	117	57	0	0
Germany	15	0	0	5
Finland	57	0	0	14
Italy	5	0	0	40
Total	949	617	235	687

Breakdown of data by year

	T-2 + HT-2				Total
	Cereals	Cereals by-products	Other feed materials	Compound feed	
2006	142	53	20	30	245
2007	142	27	3	19	191
2008	65	81	0	6	152
2009	181	147	49	131	508
2010	148	134	47	156	485
2011	174	142	65	179	560
2012	97	33	51	166	347
Total	949	617	235	687	2488

For cereals and cereals by-products, harvest year
 For other feed, calendar year

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Recommendation (EU) No 165/2013

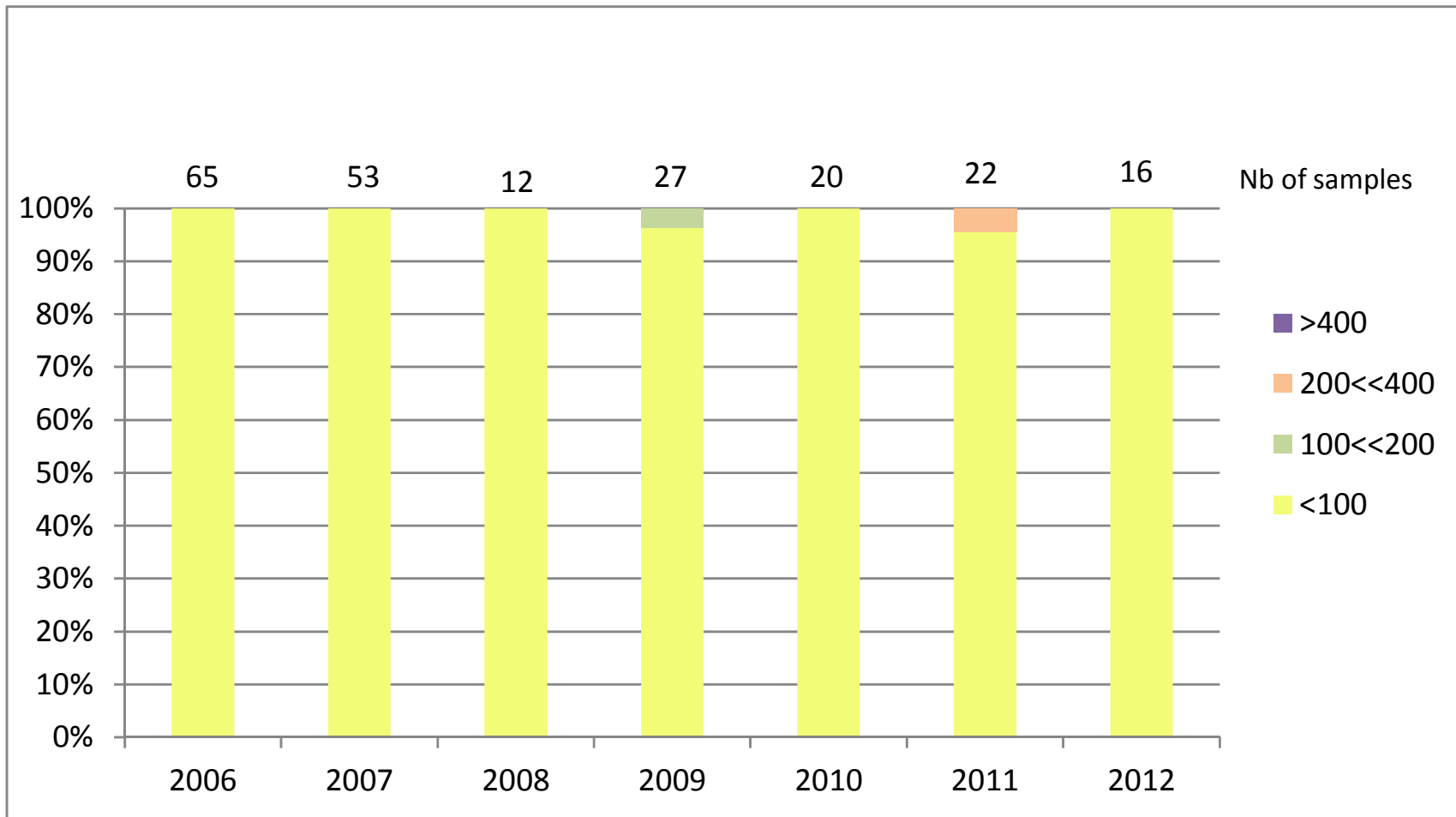
Indicative levels for feed (ppb)

- barley (including malting barley) and maize: 200
- oats (with husk): 1 000
- wheat, rye and other cereals: 100
- oat milling products (husks): 2 000
- other cereal products: 500
- compound feed: 250

T-2/HT-2 in wheat for feed use

Frequency of contamination (ppb)

Indicative level: 100 ppb



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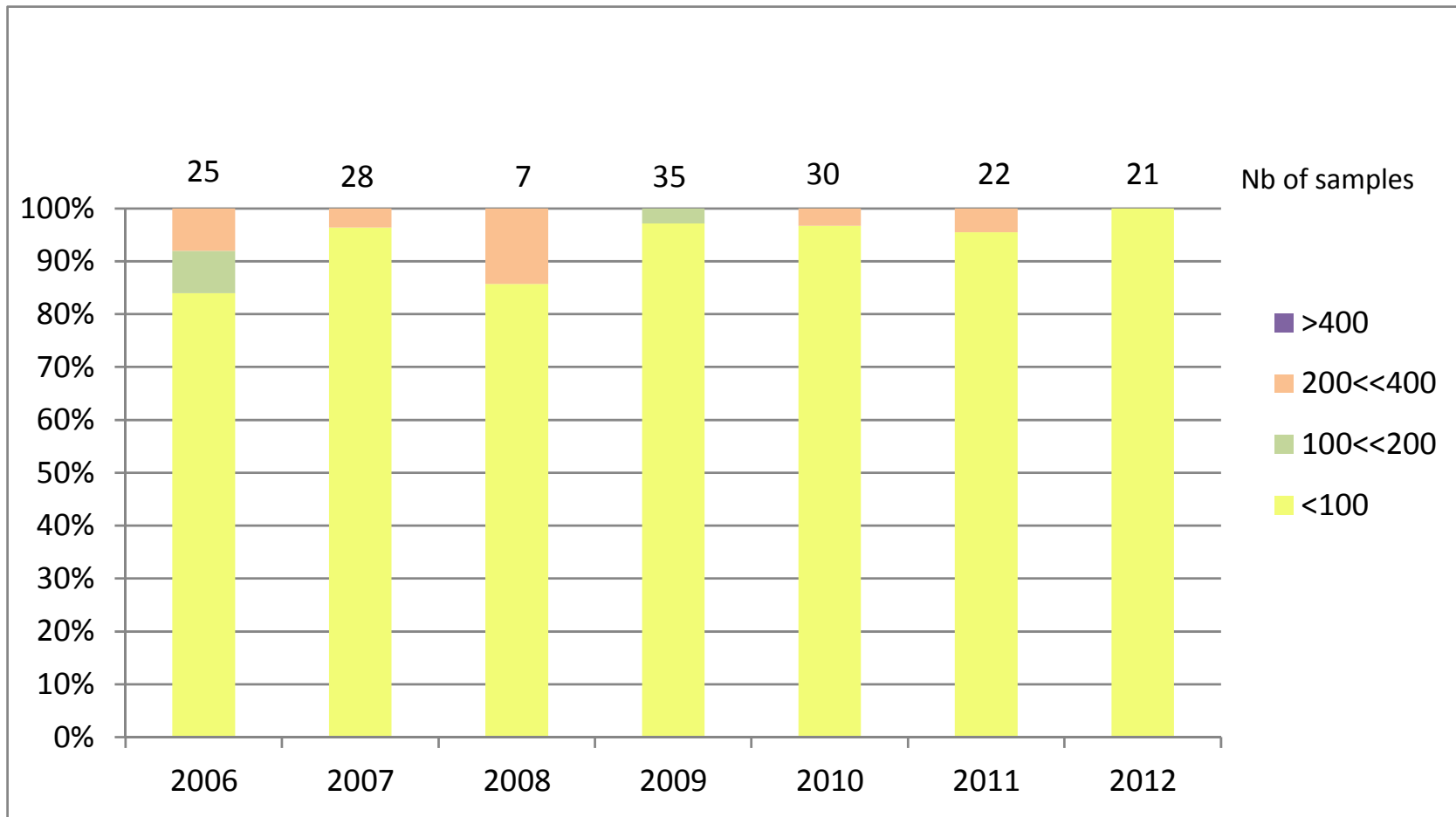
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T-2/HT-2 in barley for feed use

Frequency of contamination (ppb)

Indicative level: 200 ppb



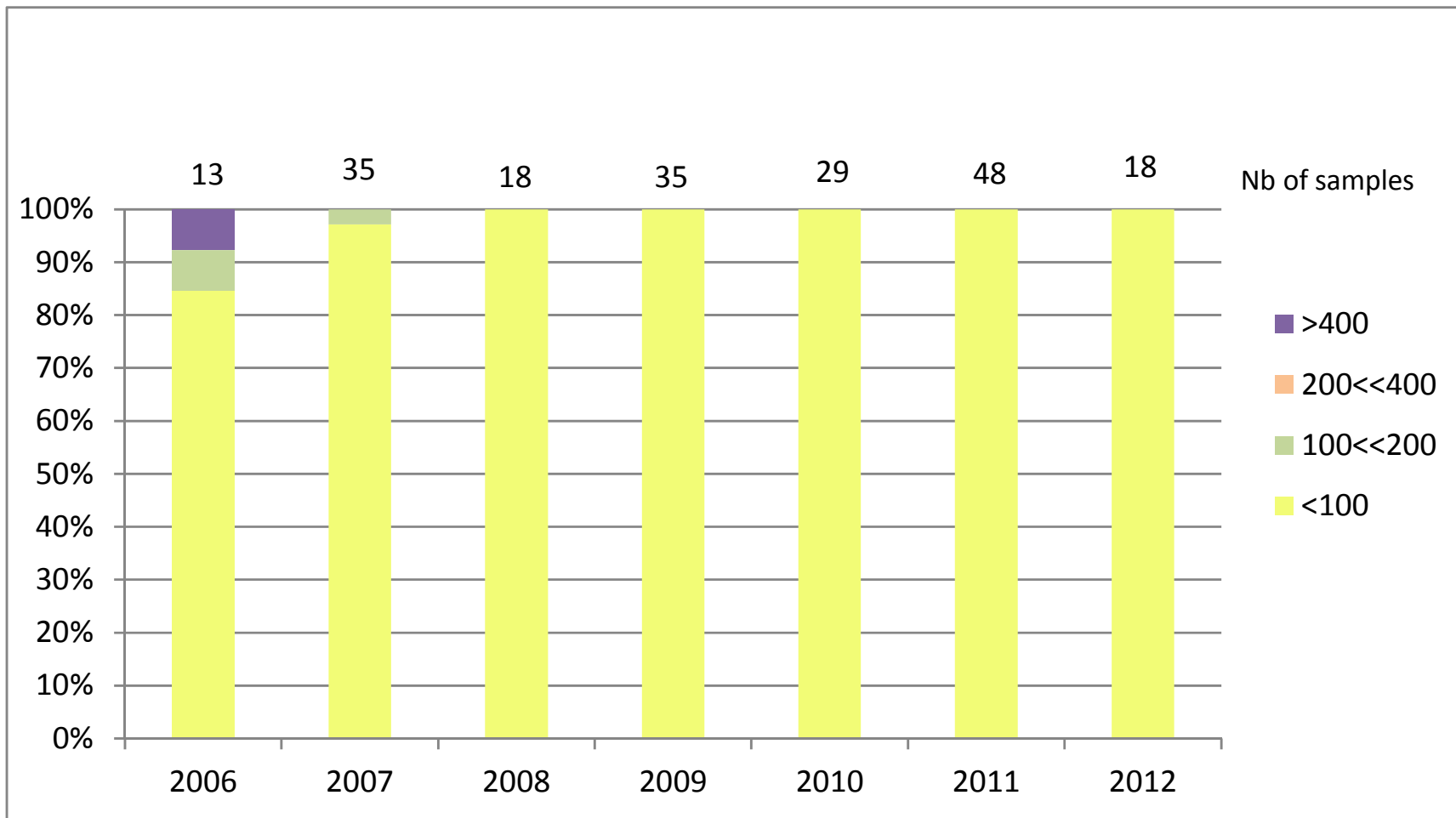
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T-2/HT-2 in maize for feed use

Frequency of contamination (ppb)

Indicative level: 200 ppb



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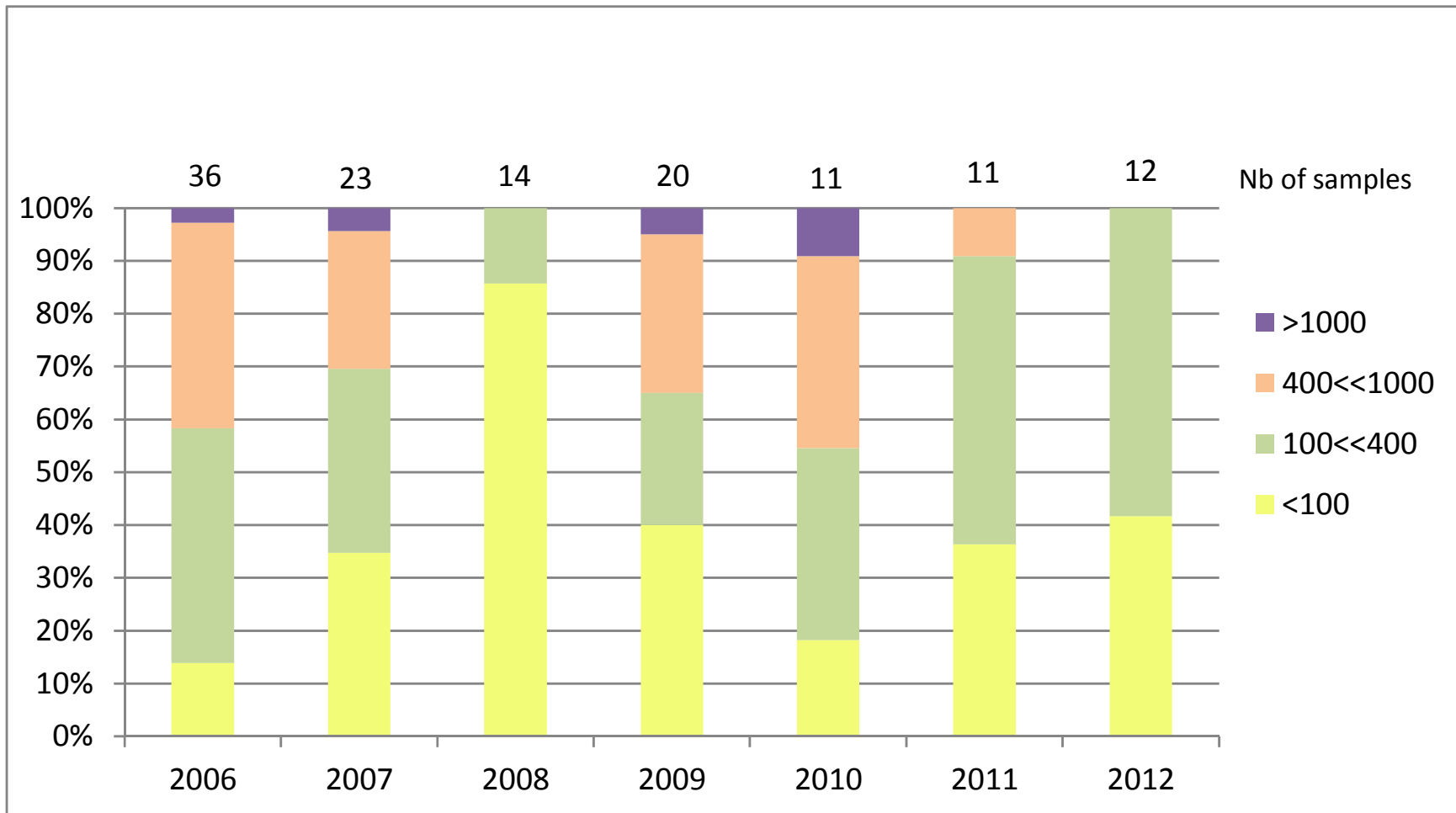
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T-2/HT-2 in oat for feed use

Frequency of contamination (ppb)

Indicative level: 1,000 ppb



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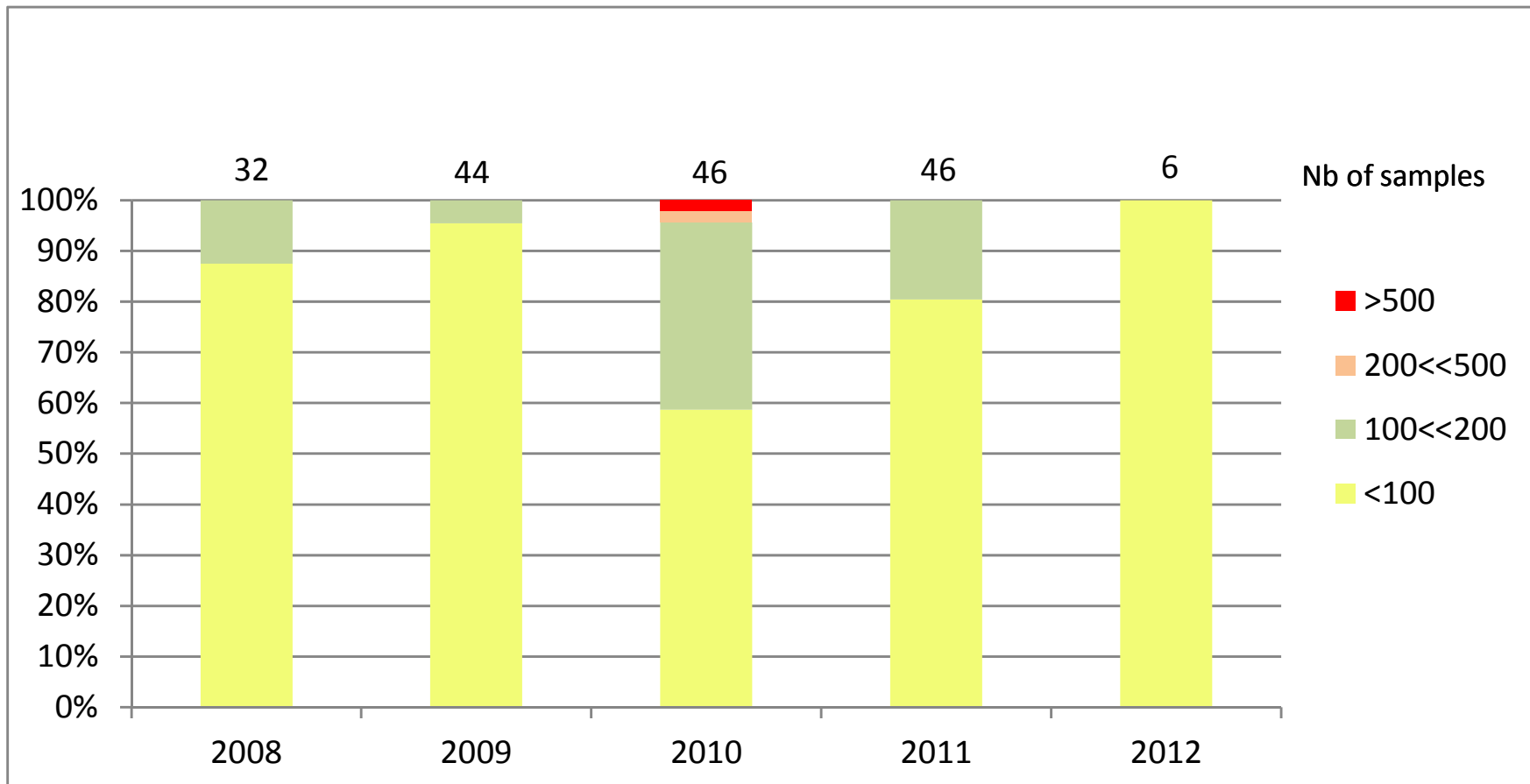
Conclusion for grains

- Very low incidence of T-2/HT-2 in triticale and wheat (all below indicative level of 100 ppb)
- Low T-2/HT-2 incidence in barley and maize
 - Exceptionally above 200 ppb (indicative level) for maize
 - Frequently above indicative level of 200 ppb for barley but never above 400 ppb
- Repeated / high prevalence in oat, with combined levels exceeding 1,000 ppb in certain harvest years (2006 or 2010) but number of samples limited.
- HT-2 level often higher than T-2 in oat

T-2/HT-2 in maize co-products for feed use

Frequency of contamination (ppb)

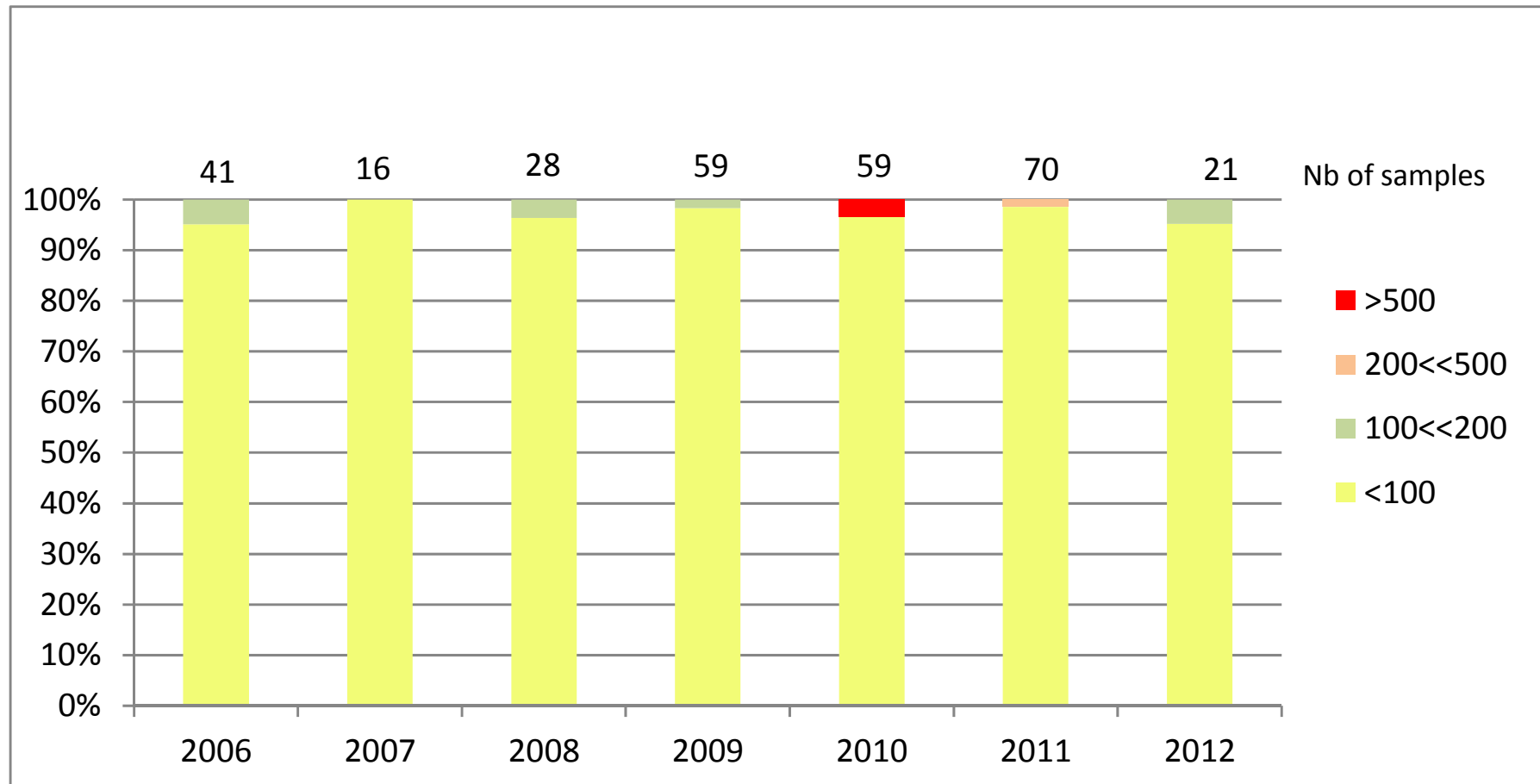
Indicative level: 500 ppb



T-2/HT-2 in wheat co-products for feed use

Frequency of contamination (ppb)

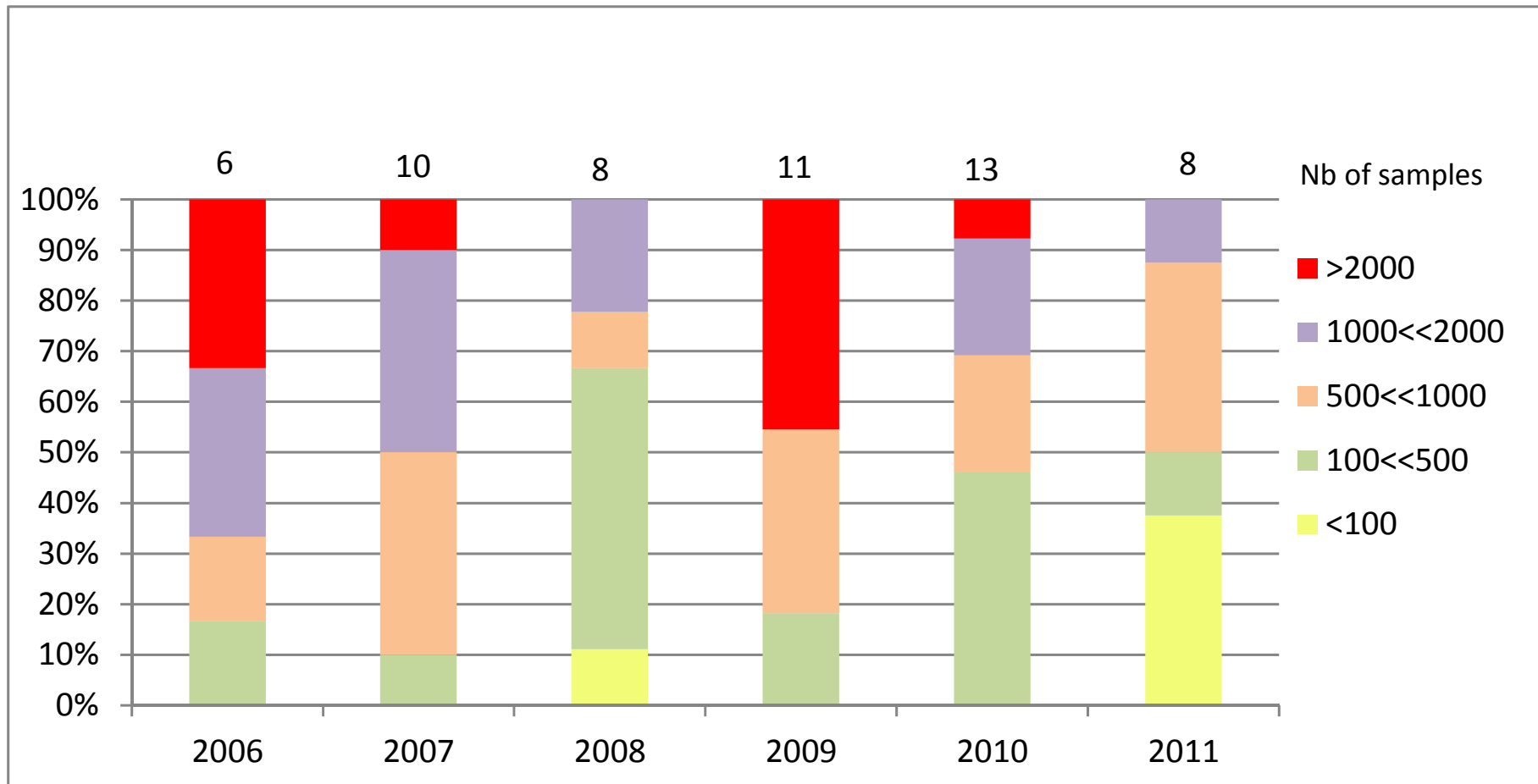
Indicative level: 500 ppb



T-2/HT-2 in oat co-products for feed use

Frequency of contamination (ppb)

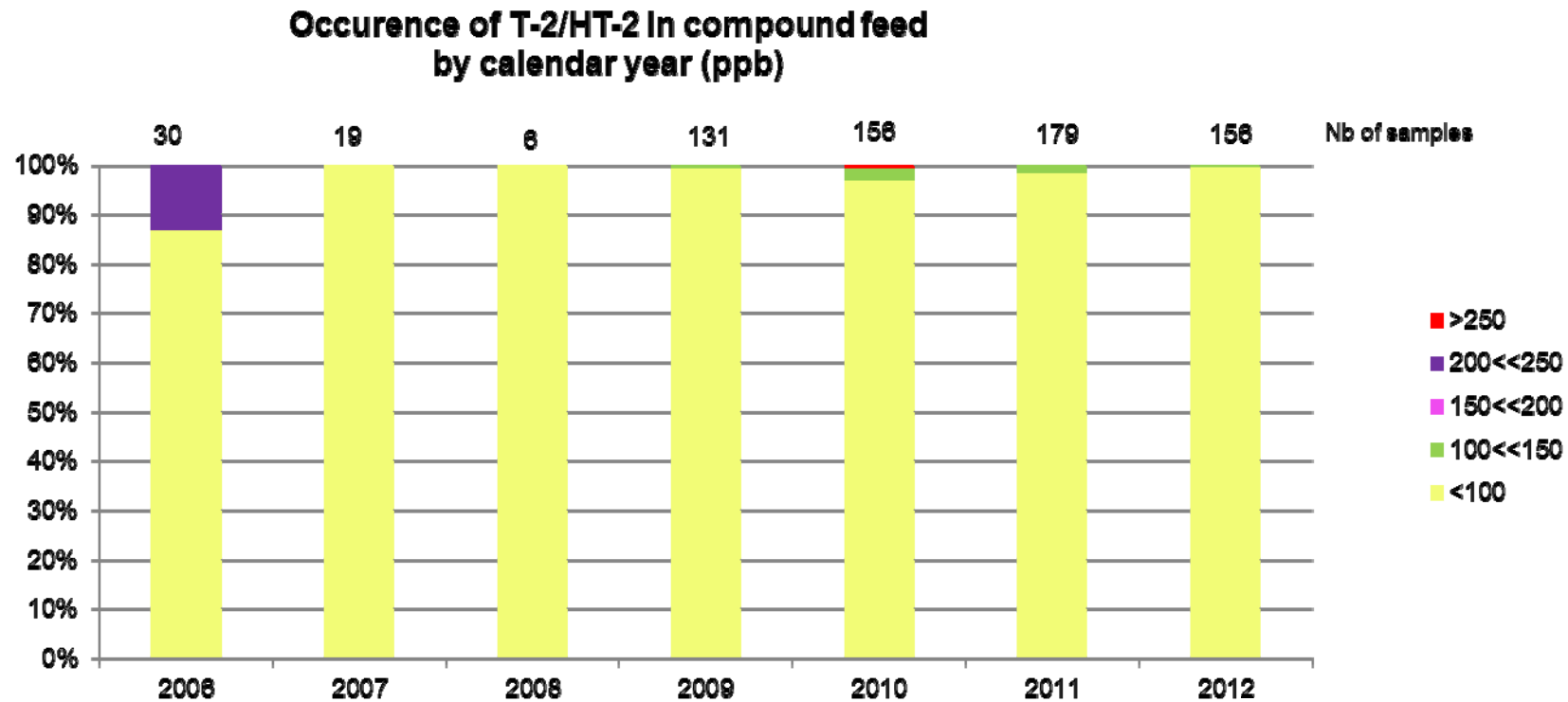
Indicative level: 2,000 ppb



Conclusions for by-products and other feed materials

- (limited number of samples)
- Low incidence of T-2 / HT-2 in wheat and maize co-products below 500 ppb (indicative value) except two wheat middlings in 2011
 - 1,145 ppb (T-2: 302 – HT-2: 843)
 - 1,385 ppb (T-2: 122 – HT-2: 1,263)
- Rather high incidence of T-2/HT-2 in oat feed/oat hulls up to 5,400 ppb
- Low incidence of T-2/HT-2 in other feed materials (no result above 100 ppb)

Occurrence of T-2/HT-2 in compound feed by calendar year (ppb)



Conclusions T-2/HT-2 compound feed

- Most compound feed for all species below 100 ppb
- A few samples between 100 and 200 ppb (pig, poultry, horses or cattle)
- 18 samples of horse feed, all below 250 ppb

General conclusions on monitoring

- Monitoring shows:
 - Low prevalence of T-2/HT-2 in feed materials except oat and oat by-products
 - Presence of T-2 / HT-2 likely to be higher in compound feed with fiber rich feed materials, i.e. horses and cattle
 - T-2 in compound feed in general below 100 ppb and always below indicative level of 200 ppb for all species (1 exception)
 - Results come mostly from Belgium.

Implementation of recommendation (EU) No 165/2013

- More monitoring for T-2/HT-2 expected as part of national collective monitoring programmes
- The compound feed manufacturing process is not expected to trigger any reduction/concentration in T-2/HT-2
- Monitoring results on feed materials prove that only source of contamination by T-2/HT-2 of compound feed is cereals and cereal products (especially oat).
- Investigations on source of contaminations are useless at feed mill level. Efforts should focus upstream in the chain (top of the pyramid).
- Monitoring results on compound feed prove very low with concentration in T-2/HT-2 almost always below 250 ppb.

Implementation of recommendation (EU) No 165/2013

- LOD for LCMS-MS used presently in collective monitoring:
 - 10 to 20 ppb for T-2
 - 75 for HT-2
- Why requiring LOQ<5 ppb if indicative levels not lower than 100 ppb for feed materials (cereals) and 250 ppb for compound feed?
- Present monitoring does not cover masked mycotoxins.
 - Which masked?
 - What methods?
- What is meant by repetitive findings?