

Joint Research Centre (JRC)

Acrylamide Level Monitoring Database

Overview of 5 years of data collection in Europe



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<http://irmm.jrc.ec.europa.eu/>

<http://www.jrc.ec.europa.eu/>

Number of data submitted to data base: **~9373**

- Within last 12 months: ~100
- Majority of data came from Germany (~6270)

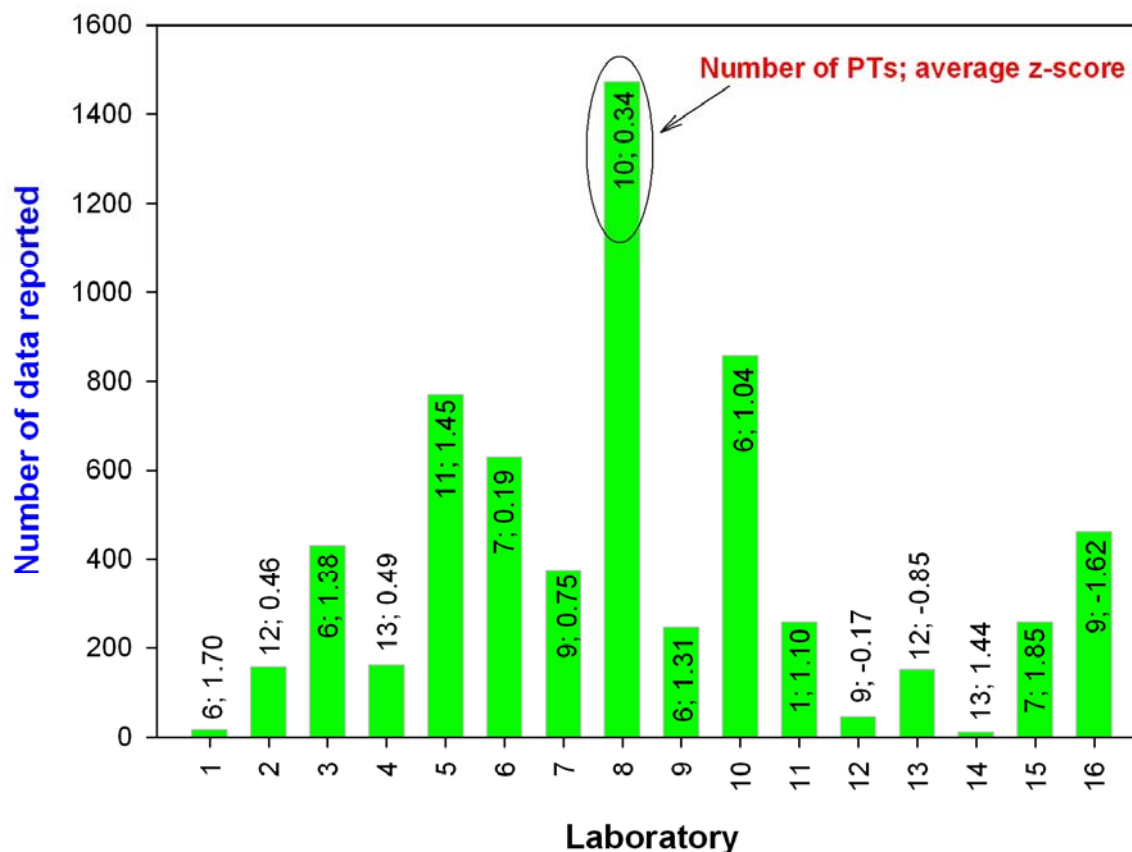
Rest from official bodies of Austria, Belgium, Finland, Greece, Ireland, Italy, The Netherlands, Spain, UK and the food and beverage industry (represented by CIAA)

Criteria for data exclusion:

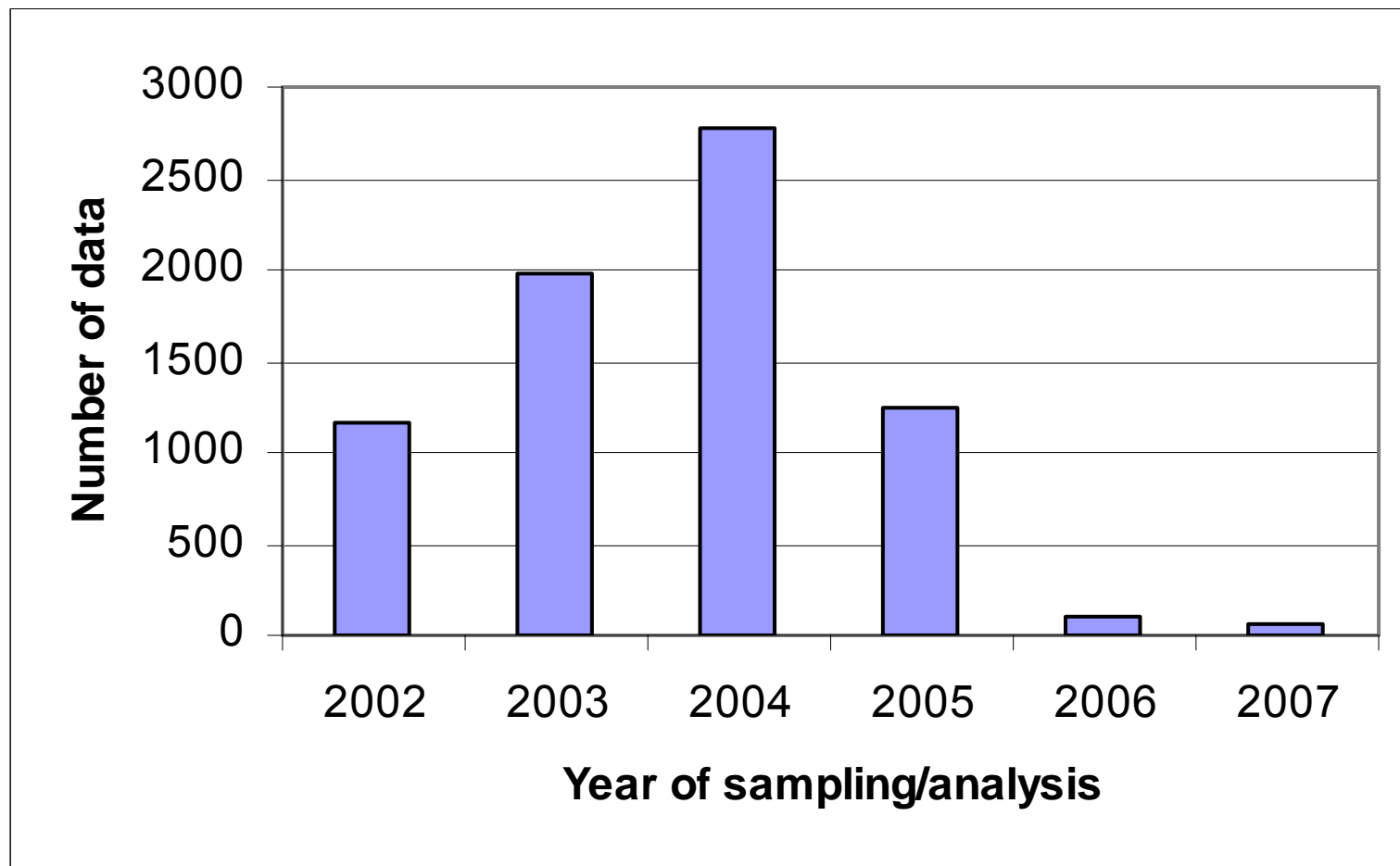
1. AA content (numeric value) below the reported LOQ.
2. AA content “below LOQ”, with an $\text{LOQ} \geq 100 \mu\text{g/kg}$.
3. LOQ was not reported.
4. Values for LOD and LOQ were identical.
5. LOQ was missing.
6. Summary z-score (SZ) was equal or greater than $|2|$.
7. Value greater than the LOQ, but not exactly specified (e.g. $< 100 \mu\text{g/kg}$ with a LOQ of $30 \mu\text{g/kg}$)

Number of laboratories reporting data: **34**

Number of data supplied as well as participation and performance of data supplier in method performance tests



All data reported – independent of food commodity



- **Number of data that passed assessment:**
7357
- **Number of data from laboratories with satisfactory performance in PTs (reported to JRC): 6300**
- **Good representation of important food matrices** (potato crisps, potato chips, crispbread, breakfast cereals, fine bakery ware (different biscuits), coffee)

What can be expected now?

- **FAPAS 3015 (2006): AA in crispbread; 1179 µg/kg; 49 participants; 88 % satisfactory performance**
- **JRC PT 4 (2007): Acrylamide in potato crisps: 344 µg/kg; 36 participants; 67 % satisfactory performance**
- **FAPAS 3019 (2008): AA in biscuits: 1256 µg/kg; 37 participants; 95% satisfactory**

(list is not exhaustive)

- **Characteristics of data distribution determined (min, max, quartiles, median)**
- **Plot of acrylamide (AA) levels against production/ expiry date of product**
Production/expiry date information was not reported for all samples

Potato products

	Potato chips (French fries)	Potato crisps (Potato chips)	Potato pancake
Total number	1399	836	121
	µg/kg	µg/kg	µg/kg
Min	5	5	10
25%	85	315	172
Median	186	532	352
75%	362	933	713
95%	868	1800	2067
Max	4653	4215	3072

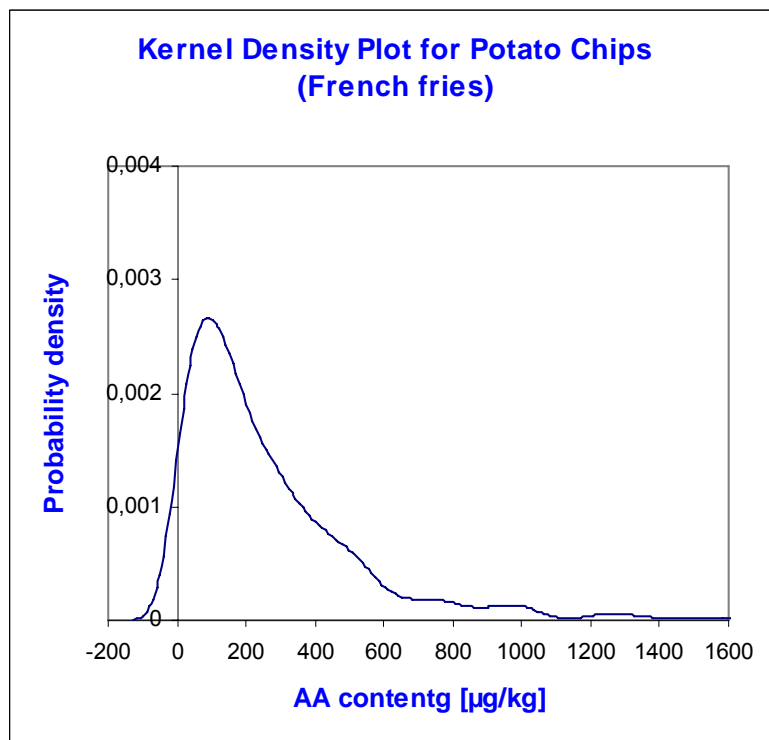
Bakery ware

	Biscuits	Crispbread	Gingerbread	Bread	Other bakery ware
Total number	899	413	1009	192	192
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Min	5	5	5	5	5
25%	67,5	79,5	136,7	10	15
Median	165	244	301	30	40
75%	381	507	669	110	163
95%	920	1389	1805	322	740
Max	3324	2838	7834	1987	1300

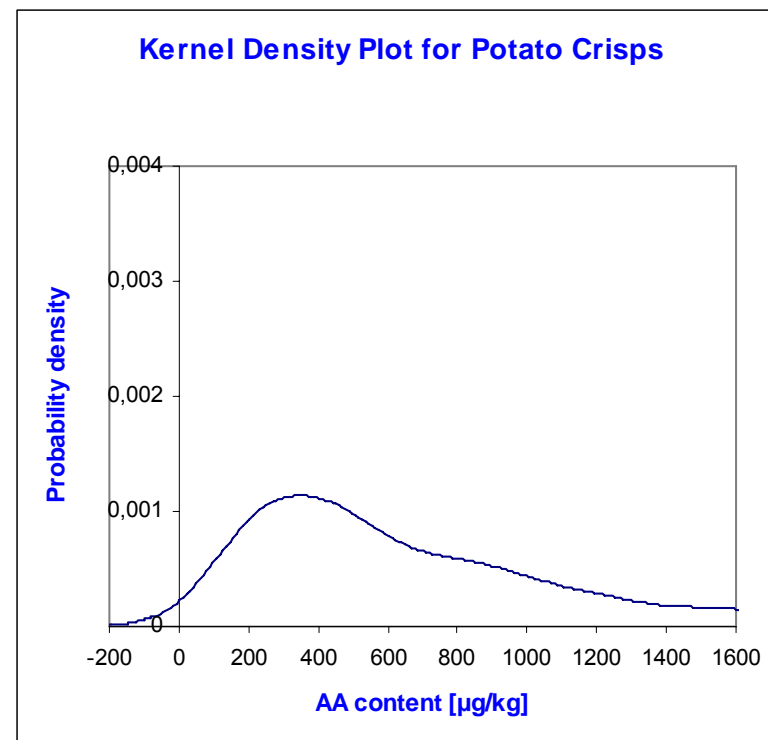
Other food products

	Cereals	Muesli	Coffee	Coffee substitutes	Infant food	Food for diabetics
Total number	269	69	235	108	275	402
	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Min	5	5	79	116	5	5
25%	30	10	221	497	35	102
Median	70	30	286	773	79	230
75%	150	88	373	1226	183	620
	355	209	574	2325	384	1752
Max	1649	946	975	2955	910	3044

Variability of AA contents



235 samples

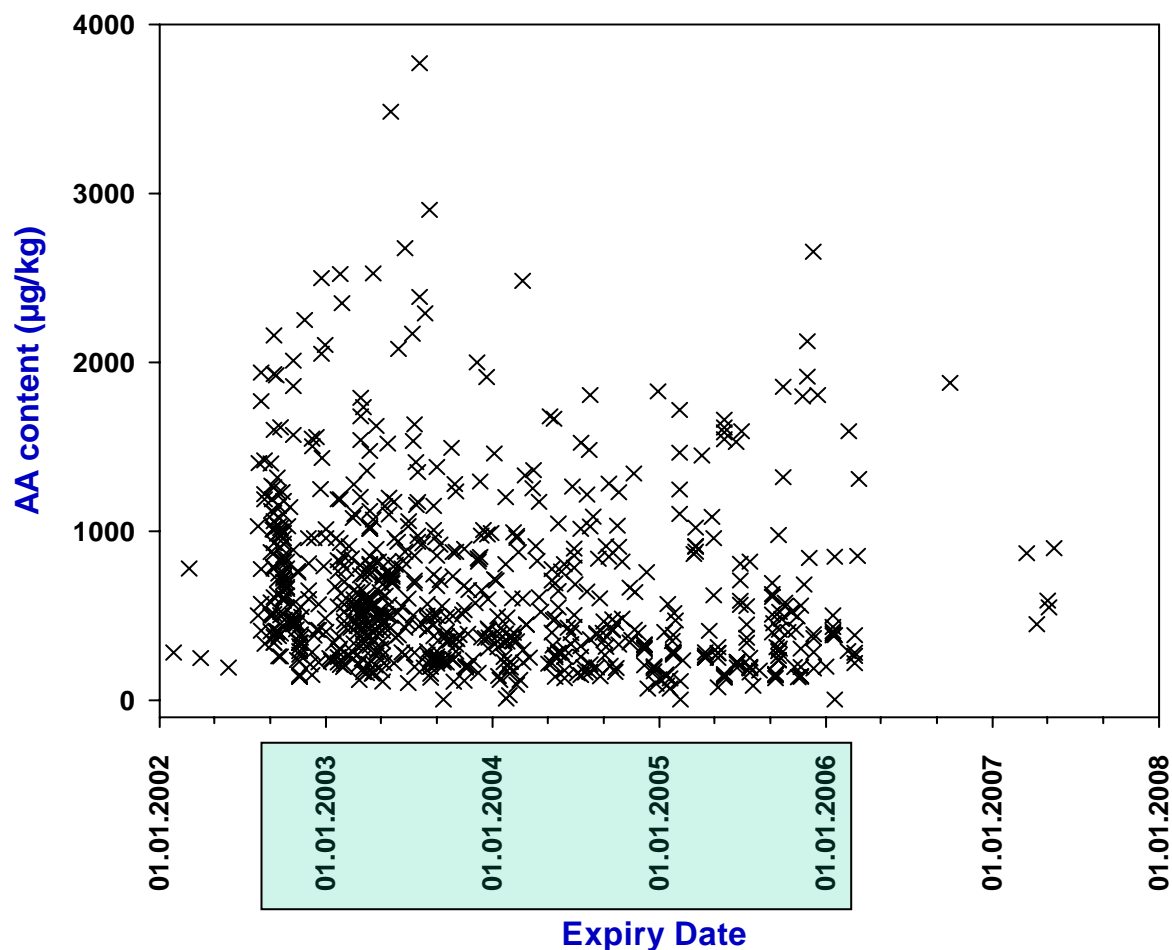


836 samples

- **Food categories with sufficient number of data with given production/expiry date information selected**
- **Contents reported as below LOD resp. LOQ replaced by LOD/2 resp. LOQ/2**
- ❖ **Information on production/expiry date available only for a fraction of data**
- ❖ **Inhomogeneous data distributions with respect to production/expiry date found**

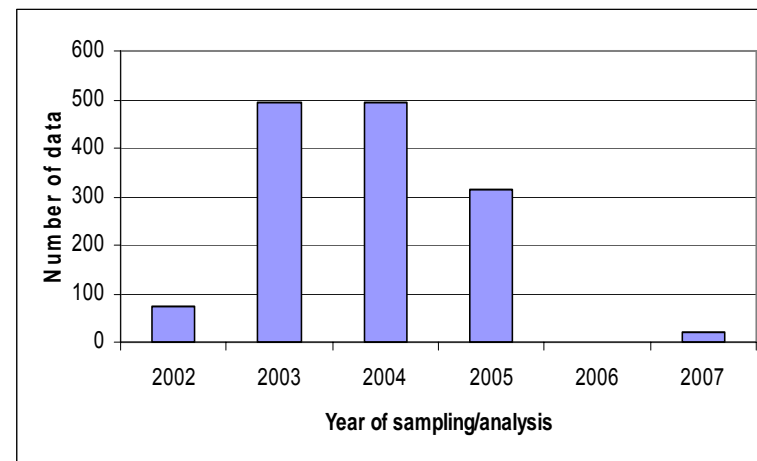
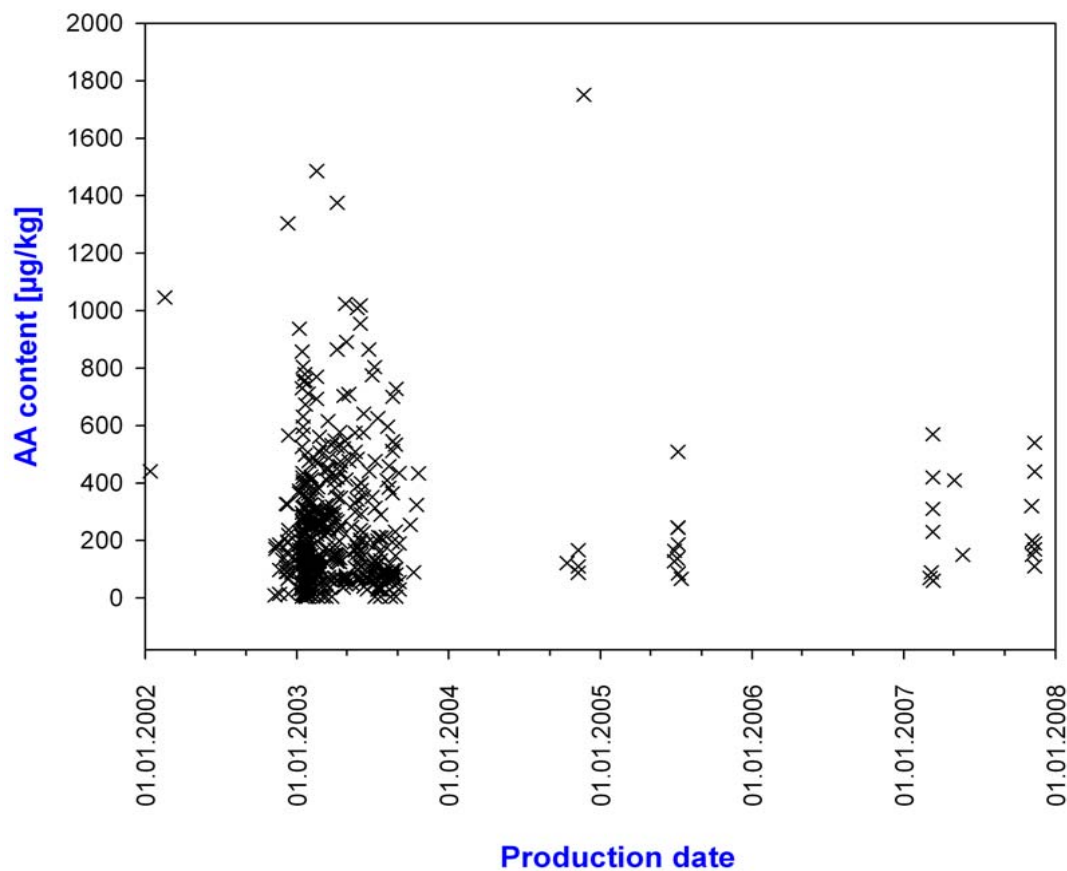
Potato crisps: 743 data

~3 years of observation



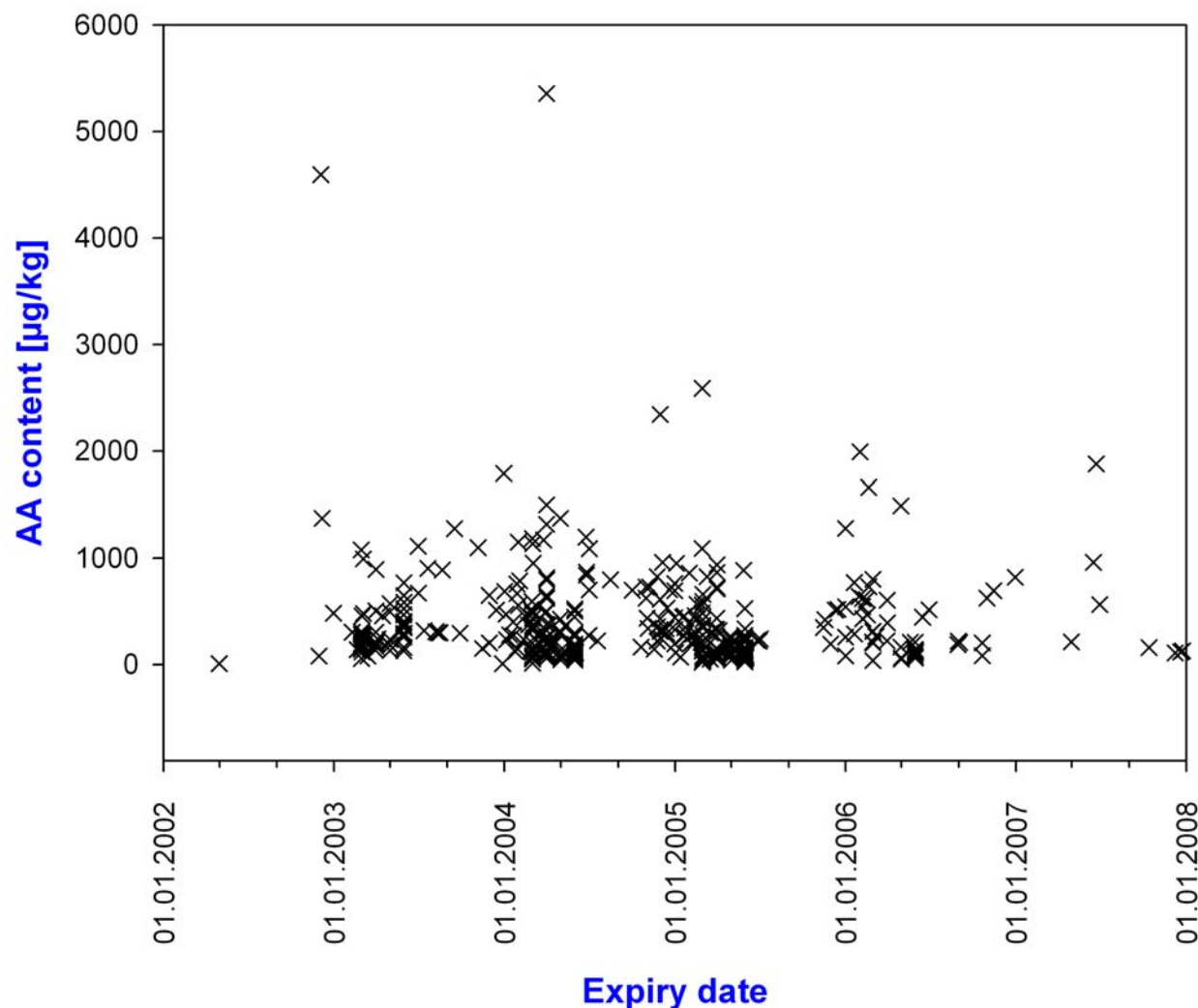
Total 836 data

Potato chips (French fries): 479 data



Total: 1399 data

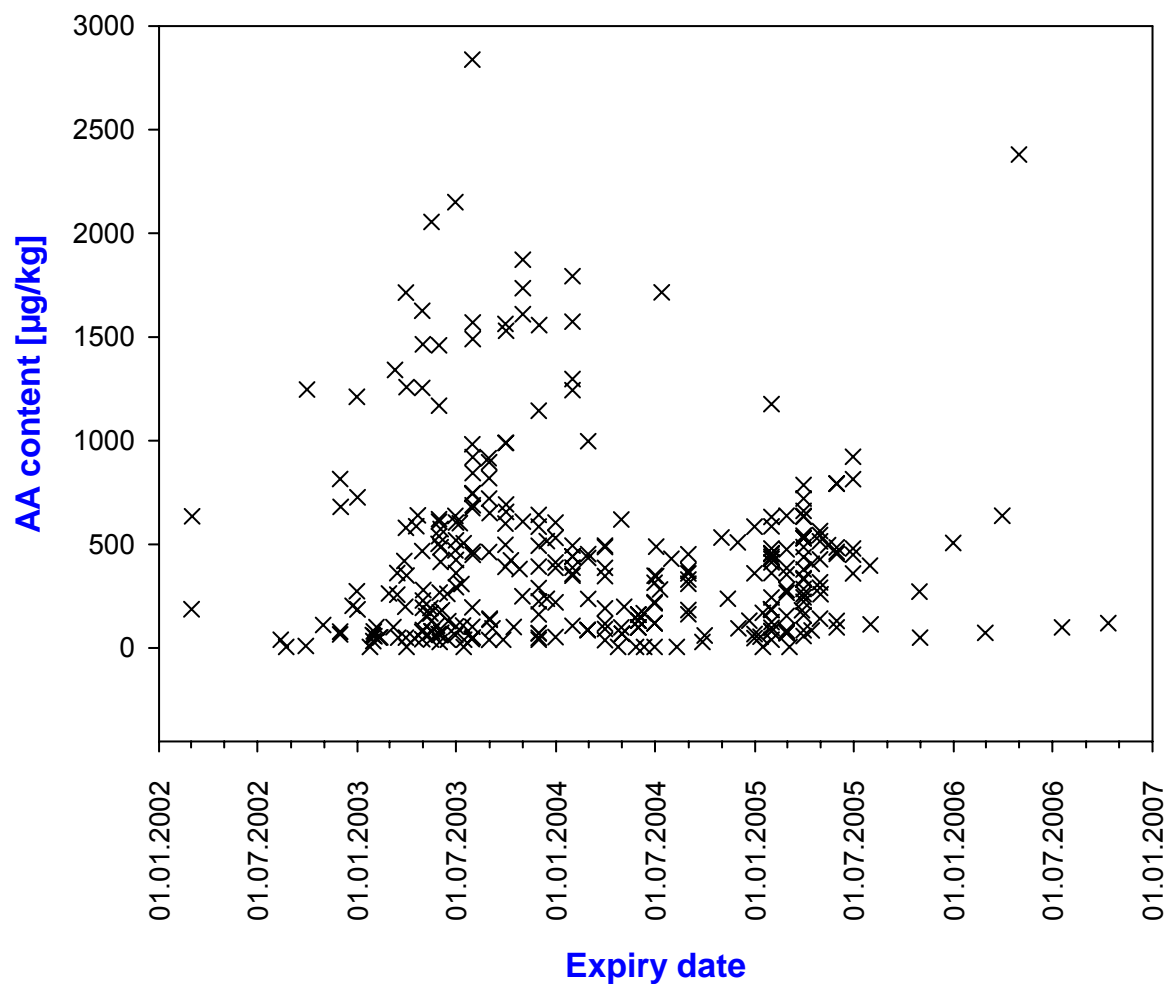
Gingerbread: 458 data



Data of 4 production seasons

Total: 1009 data

Crispbread: 318 data



Total 413 data

Difficult to estimate trends

Potential reasons:

- Number of data per food commodity too low
- Variability of data due to influence of
 - Different countries of production
e.g.: different preferences in roasting degrees of coffee
 - Different production sites / processes
 - Different raw materials
 - Different laboratories

- ✓ **Data collecting: successful**
- ✓ **Nearly 7400 data considered reliable**
- ✓ **Good representation of important food matrices**
- ✓ **Updated database will be soon on the Web**

<http://irmm.jrc.ec.europa.eu/html/activities/acrylamide/database.htm>

- **New data will be submitted**
 - From 2006
 - Will be integrated in database

- **Database handed over to EFSA**

**Thanks to all partners,
for good collaboration!**

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Thank you for your attention!