

# Mycotoxin Report



## Mycotoxin Survey 2016 Q1

Mycotoxins are toxic fungal substances that occur in food and feed. The BIOMIN Mycotoxin Survey provides an overview on the incidence of the major mycotoxins aflatoxins (Afla), zearalenone (ZEN), deoxynivalenol (DON), fumonisins (FUM), T-2 toxin (T-2) and ochratoxin A (OTA) in the primary components used for animal feed including ingredient commodities such as corn, wheat, barley, rice, soybean meal, corn gluten meal, dried distillers grains (DDGS) and silage. The report summarizes results for a total of 2,263 samples (with 9,000 analyses conducted) from 54 countries around the world for the period January to March 2016. This will be followed by ongoing quarterly reporting.

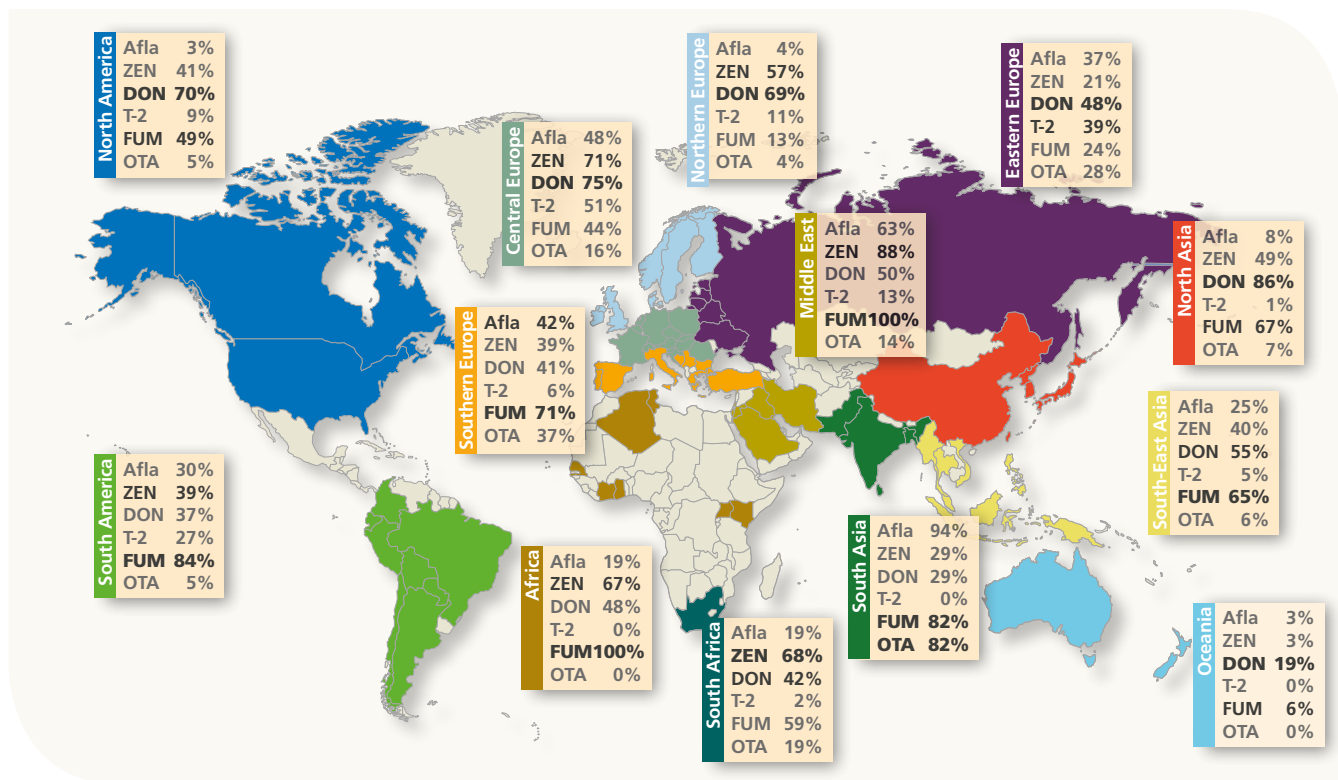


Figure 1. Prevalence of mycotoxins in different geographic regions according to percentage of positive samples (>limits of quantification)

### Co-contamination of Mycotoxins

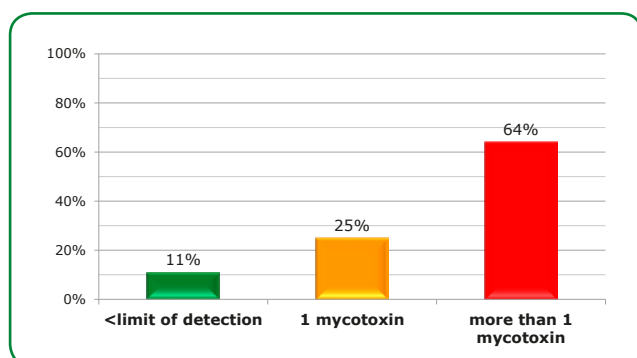


Figure 2. Percent co-contaminated samples (for samples tested for 3 or more major mycotoxins)

### Overview of Results

An overview of the distribution of mycotoxins by region of origin is illustrated in Figure 1:

- The most common mycotoxins are DON and FUM which were both detected in 61 % of all samples at average levels of 523 ppb and 1,425 ppb, respectively.
- 44 % of all tested samples were contaminated with ZEN at an average concentration of 201 ppb.
- In the first quarter of 2016, 91 % of all samples contained at least one mycotoxin and over two-thirds of all samples (tested for at least three mycotoxins) were co-contaminated (Figure 2).

## Results by region of origin

Europe	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	335	495	529	409	381	332
Positive (%)	40 %	51 %	61 %	34 %	47 %	25 %
Average of Positive (ppb)	2	55	419	19	1,042	10
Maximum (ppb)	22	2,652	8,830	303	32,270	438

- 61 % and 51 % of European samples were contaminated with DON and ZEN, respectively.
- More than 70 % of all European samples were co-contaminated with more than one mycotoxin.

Asia	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	362	367	378	192	332	196
Positive (%)	15 %	42 %	73 %	2 %	62 %	12 %
Average of Positive (ppb)	32	381	605	27	1,355	5
Maximum (ppb)	241	32,966	10,699	37	18,429	52

- In Asia, the most prevalent mycotoxin was DON, present in 73 % of all samples at an average of 605 ppb.
- More than a half of the samples contained FUM (62 %) and 42 % contained ZEN at average levels of 1,355 ppb and 381 ppb, respectively.

North America	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	280	327	295	282	327	316
Positive (%)	3 %	41 %	70 %	9 %	49 %	5 %
Average of Positive (ppb)	11	455	682	169	1,236	8
Maximum (ppb)	24	9,490	13,206	1,270	10,829	100

- The most common mycotoxin in North American samples is DON with a prevalence of 70 %. The highest average DON concentration (682 ppb) was also observed in this region.
- ZEN was detected in 41 % of all North American samples representing the highest average all over the world (455 ppb).

South America	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	860	510	224	286	338	109
Positive (%)	30 %	39 %	37 %	27 %	84 %	5 %
Average of Positive (ppb)	6	107	1,153	58	1,766	2
Maximum (ppb)	160	1,100	10,990	286	13,083	4

- FUM remains the main concern in South America with a prevalence of 84 % and an average FUM concentration of 1,766 ppb.
- The second most common mycotoxin in this region is ZEN which was present in 39 % of the samples at an average concentration of 107 ppb.

Middle East	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	8	8	8	8	6	7
Positive (%)	63 %	88 %	50 %	13 %	100 %	14 %
Average of Positive (ppb)	40	28	157	3	1,289	0
Maximum (ppb)	190	97	344	3	5,228	0

- All 8 Middle East samples tested positive for this Fumonisin.
- The highest average Afla concentration (40 ppb) was observed in this region.

Africa	Afla	ZEN	DON	T-2	FUM	OTA
Number samples tested	86	86	86	86	86	86
Positive (%)	19 %	67 %	44 %	1 %	72 %	13 %
Average of Positive (ppb)	6	133	134	8	1,189	7
Maximum (ppb)	39	6,276	606	8	7,071	62

- ZEN was present in 67 % of the samples from this region.

## &gt; ACKNOWLEDGEMENT

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