

dsm-firmenich

# World Mycotoxin Survey

The Global Threat

January – September 2023



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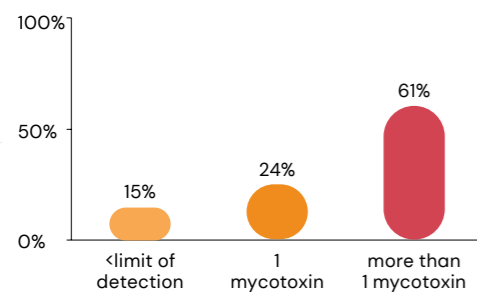
## World Overview

16 587  
Samples

79 973  
Analyses

86  
Countries

### Co-contamination



Number of mycotoxins per sample based on samples tested for 3 or more mycotoxins.

### Risk Level

The risk level expresses the percentage of samples testing positive for at least one mycotoxin above the threshold level in parts per billion (ppb).

Recommended risk threshold of major mycotoxins in ppb

Afla	ZEN	DON	T-2	FUM	OTA
2	50	150	50	500	10

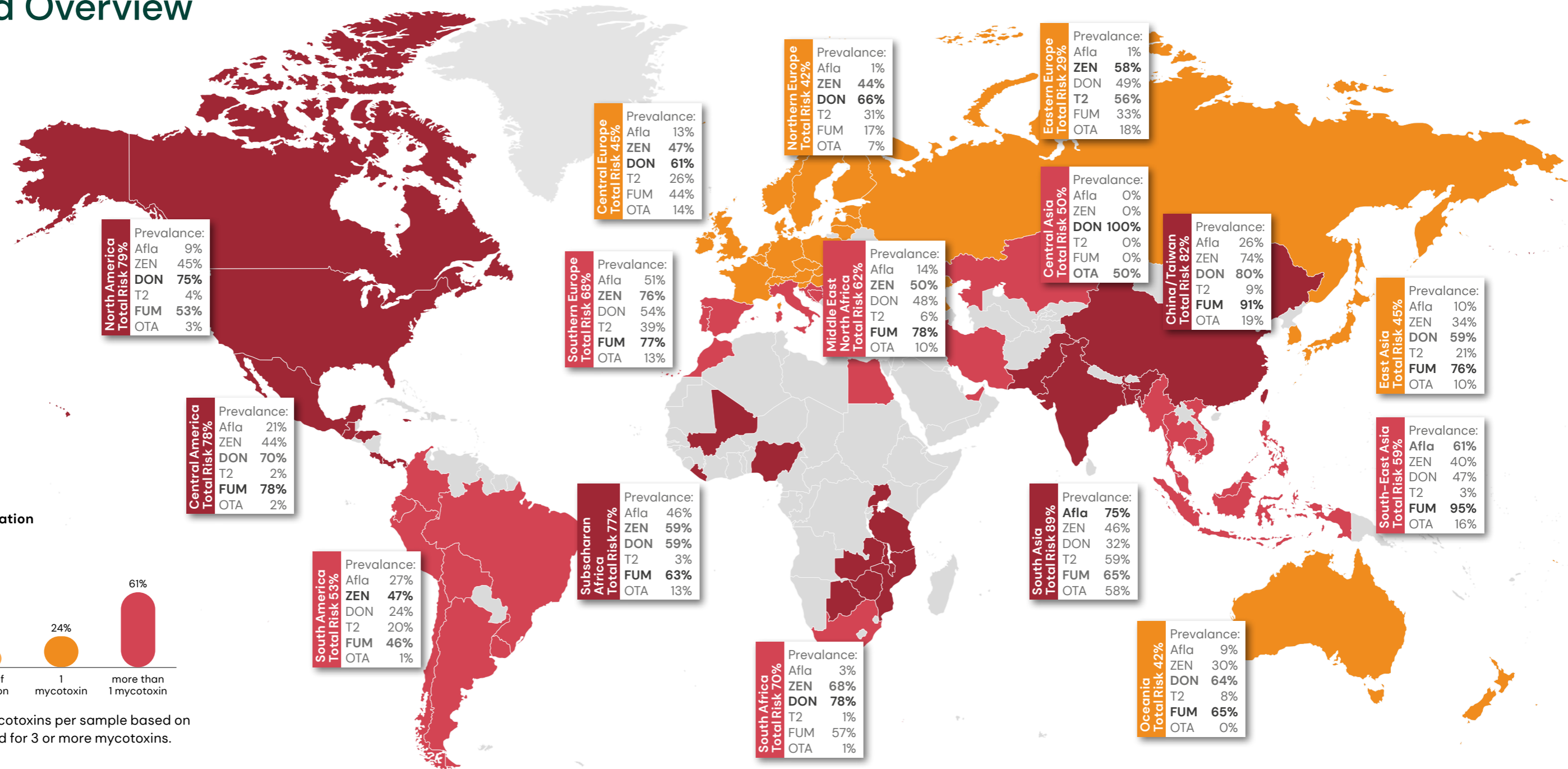
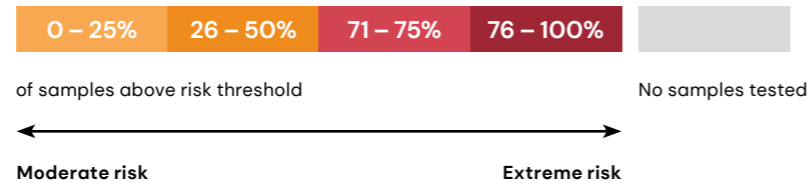


Figure 1. Global map of mycotoxin prevalence and risk in different regions.



### DISCLAIMER

DSM and the authors had no influence on the sampling process of the investigated samples. Therefore, the contamination levels found in the samples do not necessarily reflect the actual contamination level of these regions/commodities. However, the samples provide more insight into the range and levels of mycotoxins which can be found in diverse commodities of various regions.

Mycofix® is not available in the US and Canada.

### ACKNOWLEDGEMENTS

Special thanks go to Biofarma Feedlab Argentina and Anita Mengyan, Tiergesundheitsdienst Bayern e.V. for sharing their mycotoxin analysis results as part of this survey. Mycotoxin Report is published by DSM Austria GmbH, Erber Campus, 3131 Getzersdorf, Austria, Tel: +43 2782 8030, www.dsm.com/an

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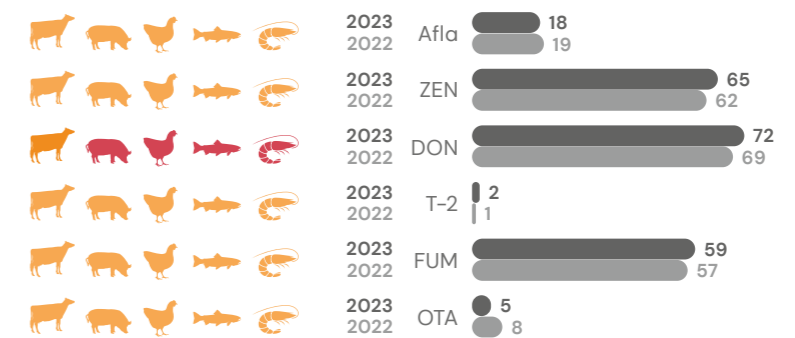
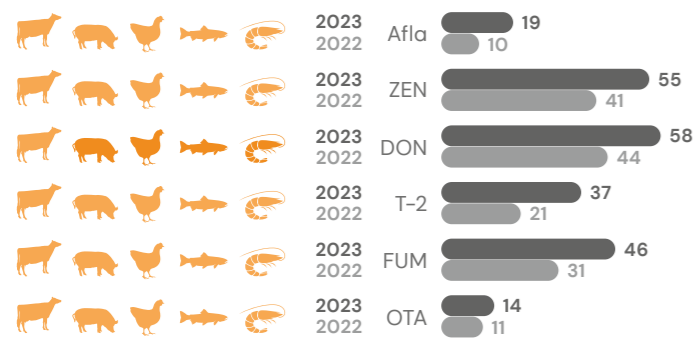
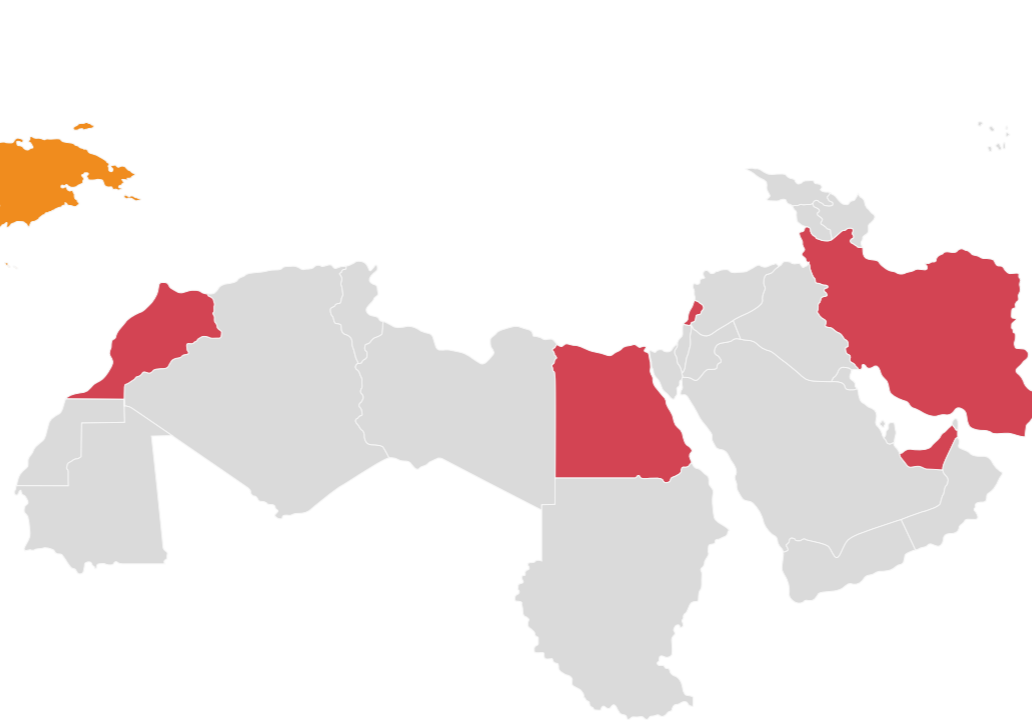
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## The Global Threat – January to September 2023

### Europe

### Middle East & North Africa

### Sub-saharan Africa



Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (light orange=moderate to red=extreme see color code page 2)

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% Contaminated samples January–September 2023 ■ and January–September 2022 ■

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% Contaminated samples January–September 2023 ■ and January–September 2022 ■

Total samples: 6 472	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	4 379	6 103	6 191	4 498	4 237	4 065
% Contaminated samples	19%	55%	58%	37%	46%	14%
Average of positive (ppb)	9	81	520	35	672	9
Median of positive (ppb)	3	21	208	15	165	3
Maximum (ppb)	1 362	13 187	25 275	2 534	37 540	386

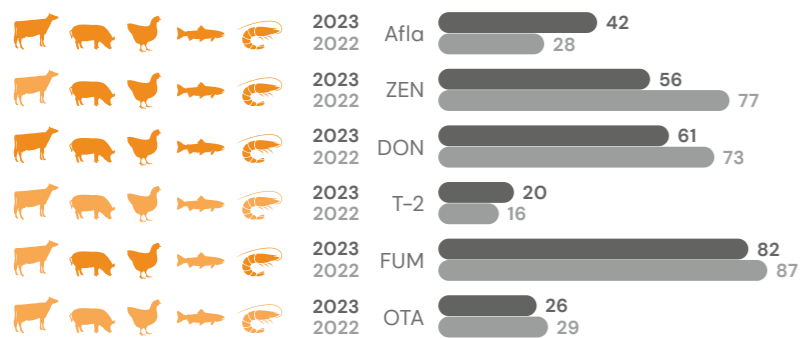
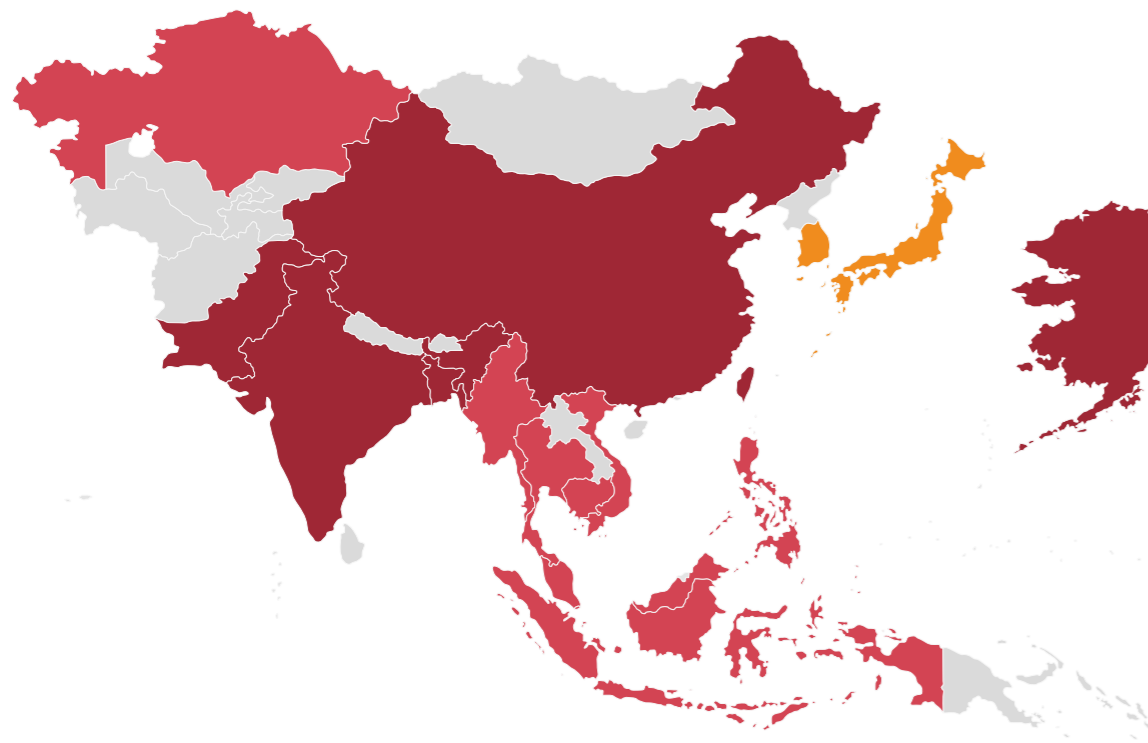
Total samples: 50	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	50	50	50	50	50	50
% Contaminated samples	14%	50%	48%	6%	78%	10%
Average of positive (ppb)	14	37	663	42	804	7
Median of positive (ppb)	6	8	392	23	535	8
Maximum (ppb)	36	193	4 472	86	3 976	11

Total samples: 798	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	798	798	798	798	798	798
% Contaminated samples	18%	65%	72%	2%	59%	5%
Average of positive (ppb)	292	53	785	18	677	10
Median of positive (ppb)	16	17	464	14	169	7
Maximum (ppb)	8 023	2 156	14 611	48	14 920	47

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### Asia

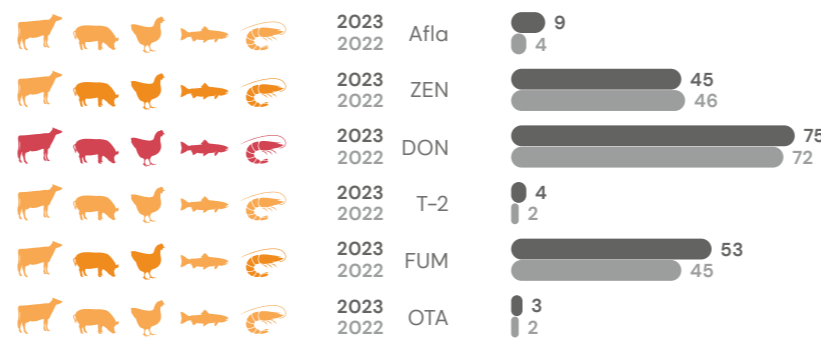


Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (light orange=moderate to red=extreme see color code page 2)

% Contaminated samples January–September 2023 ■ and January–September 2022 ■

Total samples: 2 108	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	1975	2 090	2 108	1939	1944	1939
% Contaminated samples	42%	56%	61%	20%	82%	26%
Average of positive (ppb)	34	183	706	29	1 643	10
Median of positive (ppb)	12	46	342	21	549	4
Maximum (ppb)	1 392	11 851	78 330	1 523	142 773	150

### North America

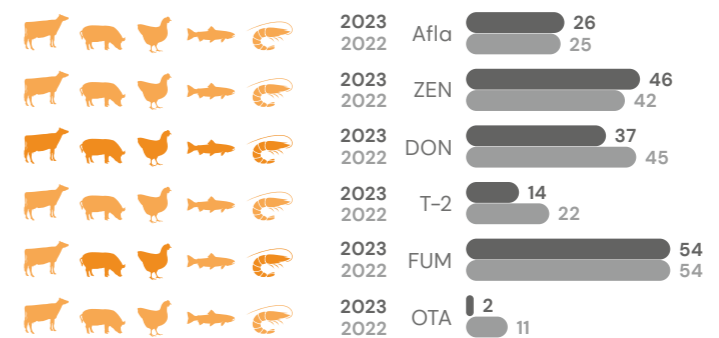


Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (light orange=moderate to red=extreme see color code page 2)

% Contaminated samples January–September 2023 ■ and January–September 2022 ■

Total samples: 1 326	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	1 326	1 326	1 326	1 326	1 326	1 326
% Contaminated samples	9%	45%	75%	4%	53%	3%
Average of positive (ppb)	17	261	1 220	36	2 589	3
Median of positive (ppb)	5	109	659	11	1 050	2
Maximum (ppb)	327	10 142	16 884	347	83 175	19

### Latin America



Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (light orange=moderate to red=extreme see color code page 2)

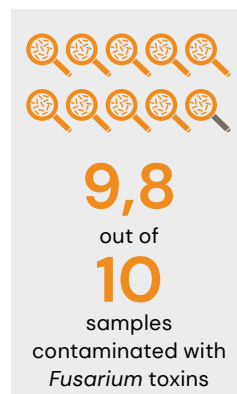
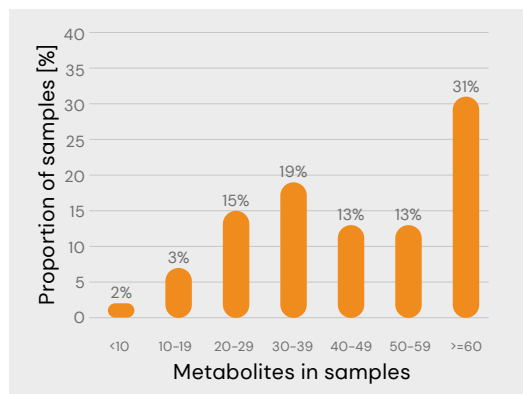
% Contaminated samples January–September 2023 ■ and January–September 2022 ■

Total samples: 5 832	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	5 639	5 542	3 914	3 500	4 355	2 505
% Contaminated samples	26%	46%	37%	14%	54%	2%
Average of positive (ppb)	13	98	714	38	1 660	92
Median of positive (ppb)	2	54	482	29	970	3
Maximum (ppb)	9 846	2 612	5 709	254	24 730	915

# World Mycotoxin Survey

## Multiple mycotoxin occurrence

Spectrum 380® results January to September 2023: the most comprehensive mycotoxin analysis available



Number of Samples: 638

### In which commodities are emerging mycotoxins most commonly found?

- Corn:**  
Aurofusarin 93%
- Finished Feed:**  
Tenuazonic acid 92%
- Straw:**  
Emodin 94%  
EnniatinB 92%

## Mycotoxins & metabolites

Metabolite	Prevalence	Average	Maximum
Tryptophol	94%	273	13 170
cyclo(L-Pro-L-Tyr)	88%	816	13 318
Abscisic acid	87%	243	5 902
cyclo(L-Pro-L-Val)	82%	953	12 396
Aurofusarin	76%	282	5 759
Infectopyron	73%	5 506	164 400
Enniatin B	71%	51	1 610
Culmorin	71%	293	28 244
Enniatin B1	66%	33	1 817
Asperphenamate	65%	210	24 066
15-Hydroxyculmorin	62%	438	17 092
Asperglaucide	62%	153	16 560
Deoxynivalenol	61%	530	16 529
Siccanol	61%	460	9 465
Brevianamid F	60%	162	2 240
Flavoglaucin	60%	132	6 207
Moniliformin	59%	58	1 564
Fellutanine A	59%	56	914
Tenuazonic acid	58%	297	8 312
Altersetin	57%	62	2 337
Daidzin	57%	29 240	287 600
Genistin	57%	39 830	366 400
Zearalenone	55%	46	2 186
Neoechinulin A	55%	79	2 887
Rugulosovin	55%	86	1 760

\*Spectrum 380® is developed and conducted by the world's leading independent mycotoxin research lab at the Department of Agrobiotechnology (IFA-Tulln) at the University of Natural Resources and Life Sciences Vienna and offered through cooperation with Performance Solutions plus Biomin.

Positive Samples [%] for metabolites present in more than 55% of samples (orange bars indicate regulated or guideline mycotoxins; red bar indicates a masked mycotoxin). Cut off for all metabolites 1 ppb (except for aflatoxins 0.5 ppb). Average of positives and Maximum are presented in ppb.