

# BIOMIN

# World Mycotoxin Survey

The Global Threat  
January – March 2021

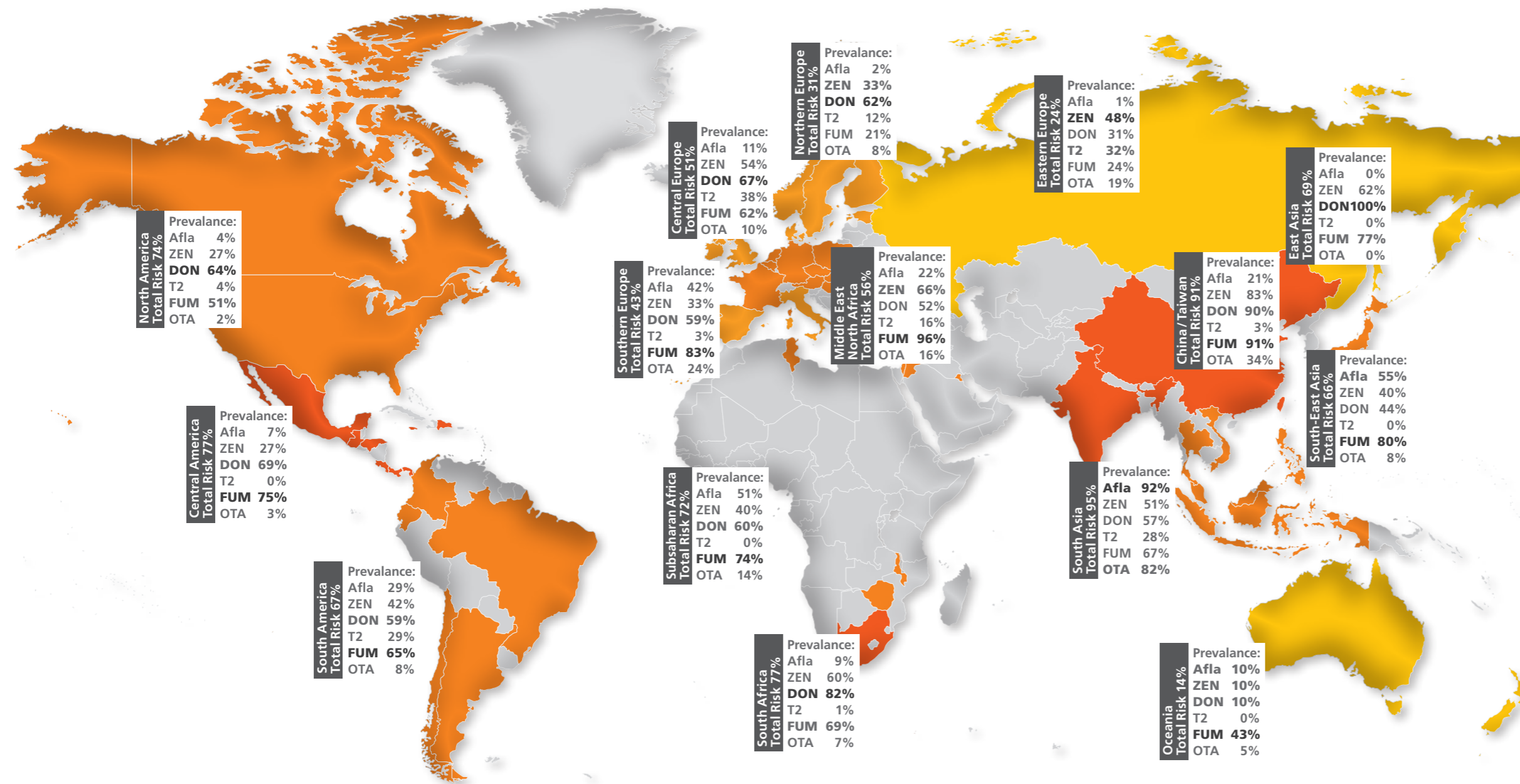


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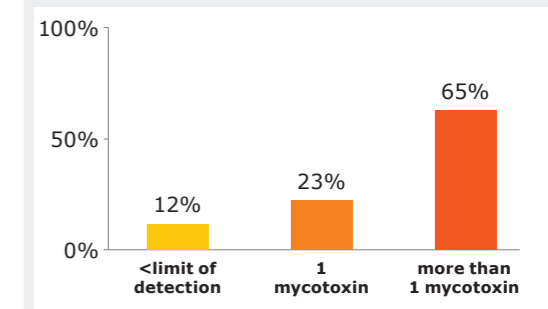
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## The Global Threat – January to March 2021

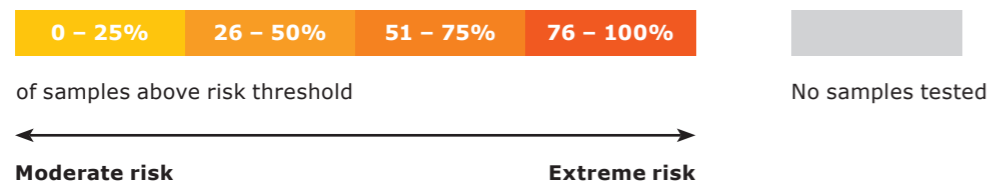


### Co-contamination



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

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



### 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

Mycotoxin	Afla	ZEN	DON	T-2	FUM	OTA
Threshold (ppb)	2	50	150	50	500	10

### DISCLAIMER

BIOMIN GmbH 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.

To avoid overestimation of the average contamination, we set cut-off thresholds for extraordinary high values of the main mycotoxins analyzed. Values above these cut-offs are not included in calculation of averages but still presented as maximum values.

Mycotix\* is not available in the US and Canada.

### ACKNOWLEDGEMENTS

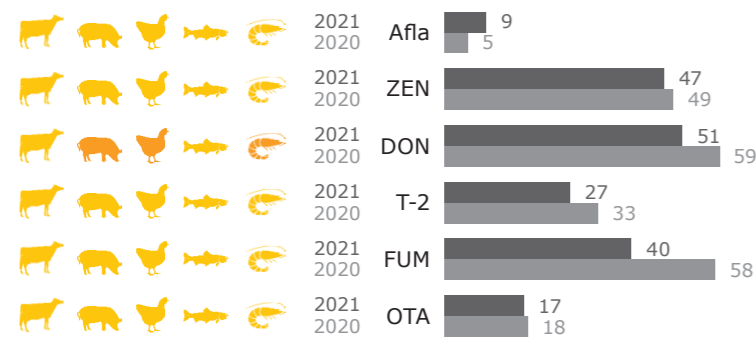
Special thanks go to Biofarma Feedlab Argentina, Labocera France and Dr. Susanna Oswald, Tiergesundheitsdienst Bayern e.V. for sharing their mycotoxin analysis results as part of this survey. Mycotoxin Report is published by BIOMIN Holding GmbH, Erber Campus, 3131 Getzersdorf, Austria, Tel: +43 2782 8030, www.biomin.net

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### Europe



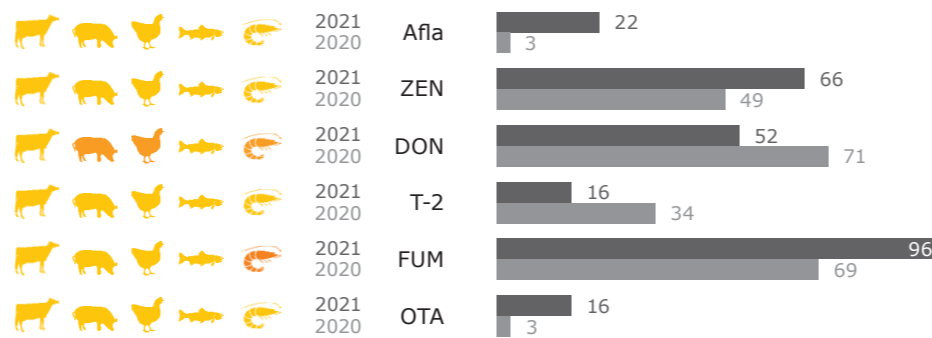
Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (yellow=moderate to red=extreme see page 2)

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

Total samples: 1537

Total Risk Level: 37%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	1149	1461	1520	1218	1196	1150
% Contaminated samples	9%	47%	51%	27%	40%	17%
Average of positive (ppb)	5	61	520	35	631	10
Median of positive (ppb)	2	17	201	12	81	2
Maximum (ppb)	96	3282	19275	943	21888	686

### Middle East & North Africa



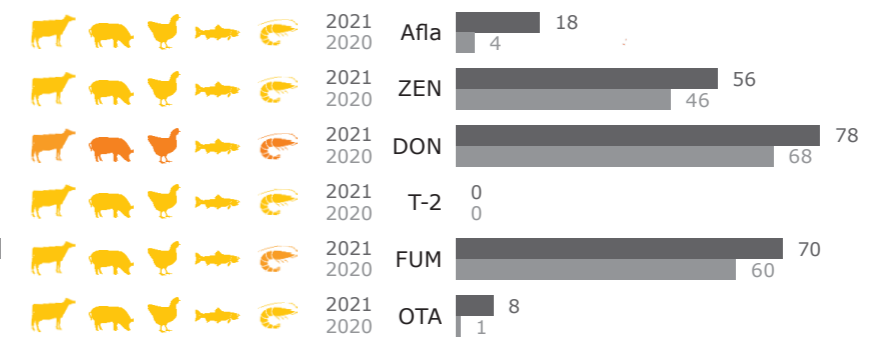
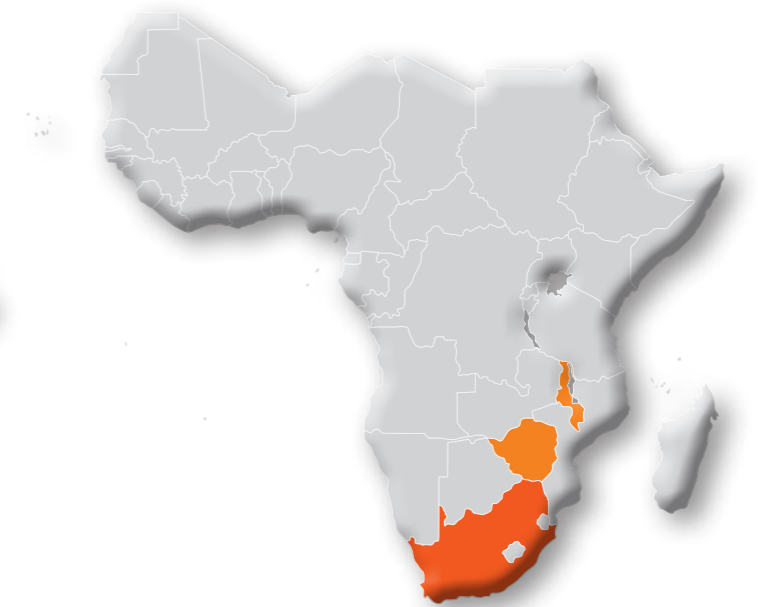
Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (yellow =moderate to red=extreme see page 2)

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

Total samples: 50

Total Risk Level: 56%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	50	50	50	50	50	50
% Contaminated samples	22%	66%	52%	16%	96%	16%
Average of positive (ppb)	3	87	368	6	352	6
Median of positive (ppb)	2	22	224	5	214	6
Maximum (ppb)	6	754	1592	11	2646	16

### Africa (without North Africa)



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

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

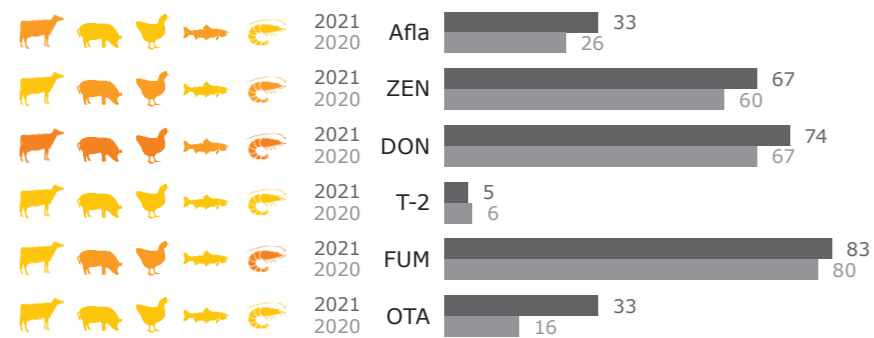
Total samples: 205

Total Risk Level: 76%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	205	205	205	205	205	205
% Contaminated samples	18%	56%	78%	0%	70%	8%
Average of positive (ppb)	10	47	567	7	392	12
Median of positive (ppb)	2	15	343	7	128	3
Maximum (ppb)	138	367	4540	7	6144	112

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### Asia



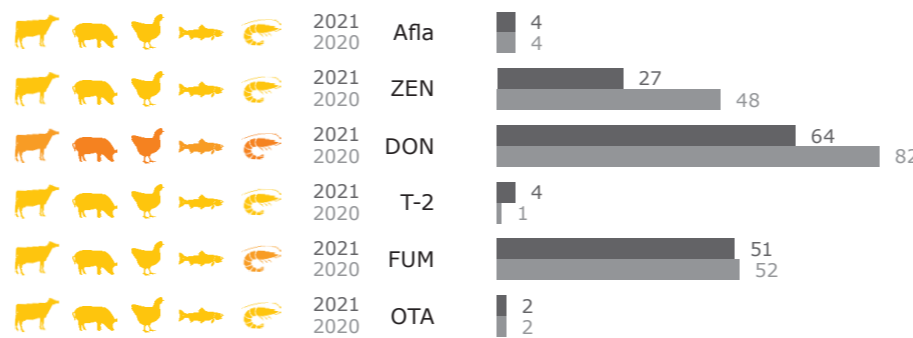
Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (yellow=moderate to red=extreme see page 2)

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

Total samples: 721

Total Risk Level: 83%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	721	699	721	687	695	721
% Contaminated samples	33%	67%	74%	5%	83%	33%
Average of positive (ppb)	39	158	730	24	1450	7
Median of positive (ppb)	7	62	540	20	819	2
Maximum (ppb)	1560	5291	7643	53	30372	125

### North America



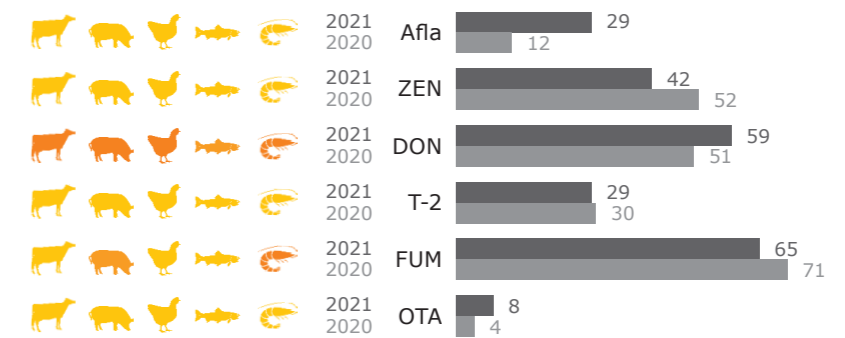
Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (yellow =moderate to red=extreme see page 2)

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

Total samples: 473

Total Risk Level: 74%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	443	443	443	443	473	443
% Contaminated samples	4%	27%	64%	4%	51%	2%
Average of positive (ppb)	33	223	932	153	2514	4
Median of positive (ppb)	6	105	434	113	686	2
Maximum (ppb)	348	3134	30044	834	18795	18

### South America



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

% Contaminated samples January-March 2021 ■ and January-March 2020 ■

Total samples: 1702

Total Risk Level: 67%*	Afla	ZEN	DON	T-2	FUM	OTA
Number of samples tested	1192	933	1062	511	1142	165
% Contaminated samples	29%	42%	59%	29%	65%	8%
Average of positive (ppb)	12	79	666	37	1562	3
Median of positive (ppb)	2	54	490	31	1020	2
Maximum (ppb)	2630	993	3740	85	17410	8

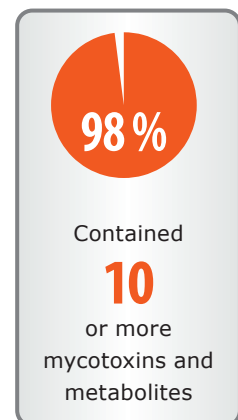
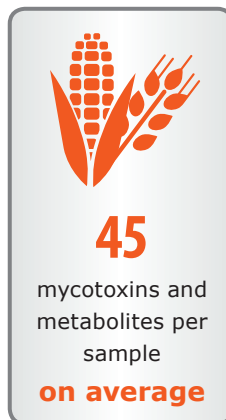
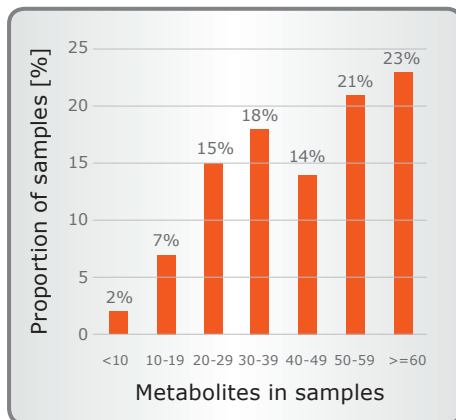
# BIOMIN World Mycotoxin Survey

## Multiple Mycotoxin Overview



### Multiple mycotoxin occurrence

Spectrum 380® results January to March 2021:  
the most comprehensive mycotoxin analysis available\*



**Total: 168 samples tested**

**In which raw materials are emerging mycotoxins most commonly found?**

**Maize:**  
Moniliformin 100%  
Aurofusarin 85%

**Finished Feed:**  
Beauvericin 100%  
Moniliformin 99%

### Mycotoxins & metabolites

	Average	Maximum	
cyclo (L-Pro-L-Val)	94%	1386	7668
cyclo (L-Pro-L-Tyr)	91%	438	4262
Brevianamid F	88%	46	387
Aurofusarin	87%	150	1270
Abscisic acid	86%	212	1371
Tryptophol	85%	371	5765
Siccanol	83%	2494	95123
Fellutanine A	83%	39	395
Beauvericin	82%	22	311
Culmorin	79%	628	9424
15-Hydroxyculmorin	77%	292	2254
Equisetin	77%	25	704
Enniatin B	76%	44	571
Moniliformin	75%	57	471
Rugulosovin	74%	69	913
Bikaverin	73%	19	122
Enniatin B1	71%	24	405
<b>Deoxynivalenol</b>	68%	<b>383</b>	<b>3727</b>
Infectopyron	67%	1360	66360
<b>Zearalenone</b>	65%	<b>48</b>	<b>724</b>
Genistin	65%	54248	464500
Daidzin	64%	38160	341700
Genistein	61%	7449	38470
Tenuazonic acid	58%	212	1397
Antibiotic Y	58%	203	3355
Daidzein	58%	6130	27196
Asperglaucide	57%	20	133

\*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 BIOMIN.

Positive Samples [%] for metabolites present in more than 55% of samples (orange bars indicate regulated or guideline mycotoxins)  
Cut off for all metabolites 1 ppb (except for aflatoxins 0.5 ppb)