The Global Threat January – June 2020





# The Global Threat – January to June 2020

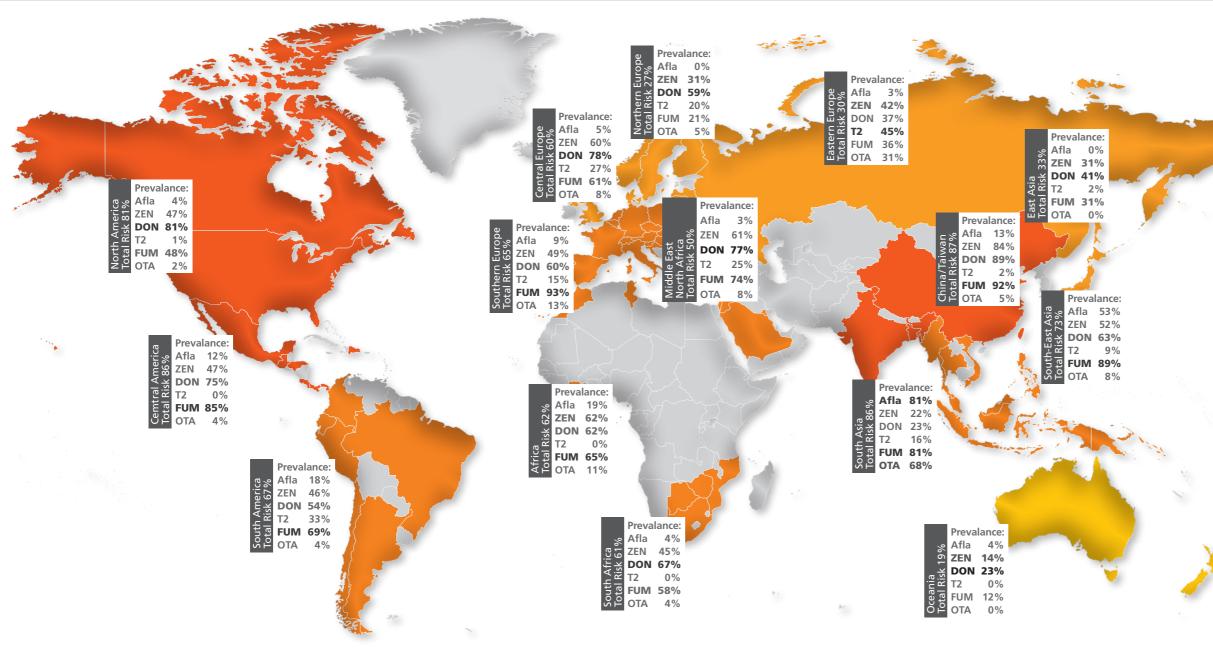
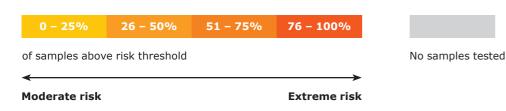


Figure 1. Global map of mycotoxin prevalence and risk in different regions.



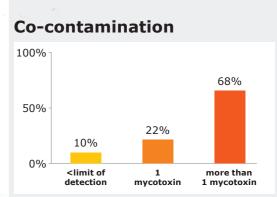
**Risk Level** 

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







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

#### 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.

Mycofix® is not available in the US and Canada.

#### ACKNOWLEDGEMENTS

Special thanks go to Biofarma Feedlab Argentina, Labocea 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

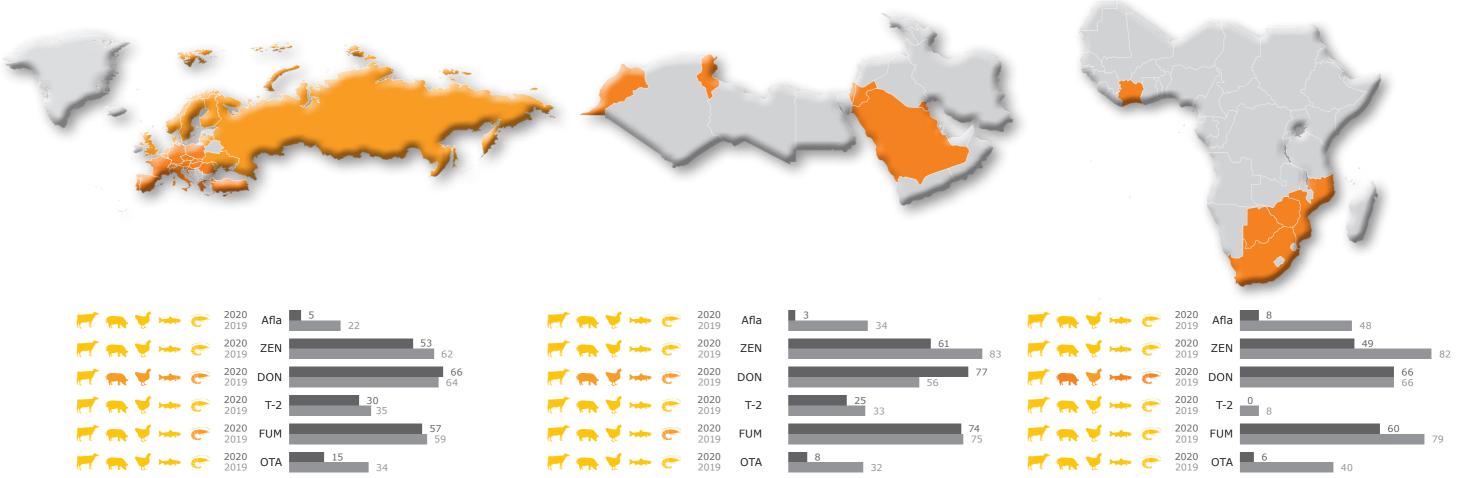
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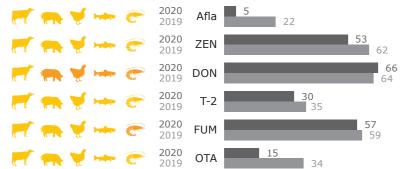
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#### Europe

## Middle East & North Africa

## 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-June 2020 
and January-June 2019

#### Total samples: 2673

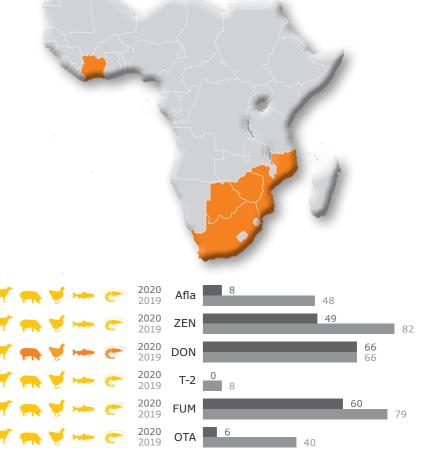
Total Risk Level: 53%*	Afla	ZEN	DON	T-2	FUM	ΟΤΑ
Number of samples tested	1799	2387	2661	1968	2036	1776
% Contaminated samples	5%	53%	66%	30%	57%	15%
% Above risk threshold	3%	14%	41%	4%	16%	3%
Average of positive (ppb)	5	68	523	31	713	12
Median of positive (ppb)	3	22	230	13	155	3
Maximum (ppb)	37	3262	11875	898	16262	560

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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-June 2020 🔳 and January-June 2019 🔳

Total samples: 66						
Total Risk Level: 50% <sup>*</sup>	Afla	ZEN	DON	T-2	FUM	от
Number of samples tested	66	66	66	63	66	65
% Contaminated samples	3%	61%	77%	25%	74%	89
% Above risk threshold	0%	24%	41%	0%	26%	09
Average of positive (ppb)	2	131	479	11	693	3
Median of positive (ppb)	2	31	175	10	146	2
Maximum (ppb)	2	1653	5170	30	5211	7



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-June 2020 🔳 and January-June 2019 🔳

Total samples: 257
Total Risk Level: 61%*
Number of samples teste

Number of samples tested
% Contaminated samples
% Above risk threshold
Average of positive (ppb)
Median of positive (ppb)
Maximum (ppb)



Afla	ZEN	DON	T-2	FUM	ΟΤΑ
245	257	257	257	257	257
8%	49%	66%	0%	60%	6%
6%	19%	50%	0%	12%	0%
82	63	475	-	385	8
5	37	292	-	113	2
1032	673	2931	-	4434	70

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#### Asia

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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-June 2020 
and January-June 2019

#### Total samples: 1231

Total Risk Level: 79%*	Afla	ZEN	DON	T-2	FUM	ΟΤΑ		
Number of samples tested	1217	1193	1227	930	1166	917		
% Contaminated samples	22%	69%	75%	4%	83%	11%		
% Above risk threshold	18%	28%	62%	0%	38%	4%		
Average of positive (ppb)	51	162	550	25	1013	26		
Median of positive (ppb)	5	40	373	21	420	5		
Maximum (ppb)	2495	11786	9689	169	35445	571		

#### **North America**



<b>r 🧹 🖛</b> (	٣	<b>2020</b> 2019	Afla	4 5
<b>n 🤘 🖛</b> (	<b>(</b>	<b>2020</b> 2019	ZEN	<b>47</b> 61
<b>n 🤘 🚧</b>	٣	<b>2020</b> 2019	DON	81
<b>n 🤘 🚧</b>	<b>(</b>	<b>2020</b> 2019	T-2	4
<b>n 🤘 🚧</b>	<b>(</b>	<b>2020</b> 2019	FUM	48 60
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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-June 2020 
and January-June 2019

Total samples: 888							
Total Risk Level: 81%*	Afla	ZEN	DON	T-2	FUM	ΟΤΑ	
Number of samples tested	861	860	831	747	850	861	
% Contaminated samples	4%	47%	81%	1%	48%	2%	
% Above risk threshold	3%	45%	75%	1%	31%	0%	
Average of positive (ppb)	13	260	761	393	3569	3	
Median of positive (ppb)	4	122	500	83	1098	2	
Maximum (ppb)	67	13351	5327	3153	66588	21	

#### **South America**



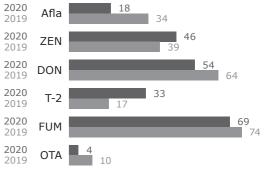
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Animal colours indicate the risk posed to this species by the prevalence and concentration of each mycotoxin in all samples from this region (yellow=moderate to red=extreme see page 2) % Contaminated samples January-June 2020 🔳 and January-June 2019 🔳

#### Total samples: 3832 Total Risk Level: 67%\*







Afla	ZEN	DON	T-2	FUM	ΟΤΑ
3153	2691	2478	1018	2809	134
18%	46%	54%	33%	69%	4%
13%	23%	54%	10%	59%	0%
5	154	915	43	2048	3
3	51	460	37	1340	4
179	43854	13780	321	35550	5

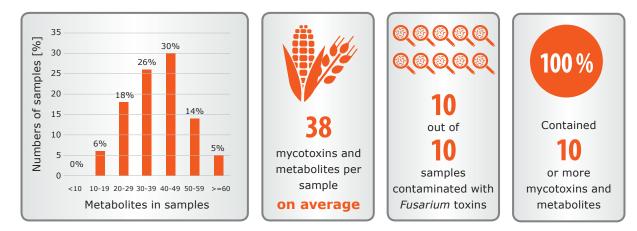
# Multiple Mycotoxin **Overview**



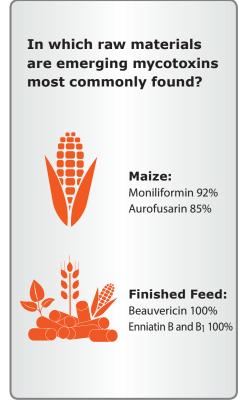
Average Maximum

## Multiple mycotoxin occurrence

Spectrum 380<sup>®</sup> results January to June 2020: the most comprehensive mycotoxin analysis available\*



Total: 440 samples tested



\*Spectrum 380<sup>®</sup> 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.

## **Mycotoxins & metabolites**

		Average	Maximum
cyclo(L-Pro-L-Val)	95%	4691	18387
cyclo(L-Pro-L-Tyr)	94%	2237	21997
Beauvericin	90%	23	456
Brevianamid F	88%	114	1413
Equisetin	87%	36	1441
Enniatin B	82%	41	592
Tryptophol	80%	457	4642
Culmorin	80%	808	63029
Deoxynivalenol	80%	200	2873
15-Hydroxyculmorin	80%	177	2413
Enniatin B <sub>1</sub>	78%	28	376
Aurofusarin	78%	237	7795
Rugulusovin	75%	164	948
Emodin	69%	96	1957
Enniatin A <sub>1</sub>	69%	12	162
Moniliformin	66%	47	752
Genistein	66%	5707	34870
Infectopyron	65%	1790	80561
Genistin	64%	35708	416700
Abscisic acid	64%	428	2578
Zearalenone	64%	43	3262
Altersetin	63%	62	1916
Daidzein	62%	3360	24645
Daidzin	60%	28066	269100
Fumonisin B <sub>1</sub>	55%	802	11478
Asperglaucide	55%	124	10425
Glycitein	54%	5909	121244
Flavoglaucin	53%	97	8064
Asperphenamate	52%	86	5487

Positive Samples [%] for metabolites present in more than 50% of samples (orange bars indicate regulated or guideline mycotoxins) Cut off for all metabolites 1 ppb (except for aflatoxins 0.5 ppb)