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BIOMIN's Mycotoxin Survey – Annual Report 2010

Once again BIOMIN shows its concern regarding the mycotoxin problem and provides you with your personal Mycotoxin Risk Management tool. The following figures, charts and tables refer to the worldwide mycotoxin contamination of agricultural commodities for the period between January and December 2010.

In this 12-month period, a total of 3349 samples were analyzed for the most important mycotoxins in terms of agriculture and animal production – aflatoxins (Afla), zearalenone (ZON), deoxynivalenol (DON), fumonisins (FUM) and ochratoxin A (OTA).

Due to the various origins of the different samples, the analysis and data were allocated to different regions: America (North and South), Asia (South-East, South and North), Oceania, Europe (Northern, Central and Southern), Middle East and South Africa.

Samples tested were diverse, ranging from cereals such as corn, wheat, barley and rice to processing by-products, namely soybean meal, corn gluten meal, dried distillers grains with solubles (DDGS) and other fodder such as straw, silage and finished feed.

Figure 1 gives you an overview on the distribution of mycotoxins throughout the different world regions.

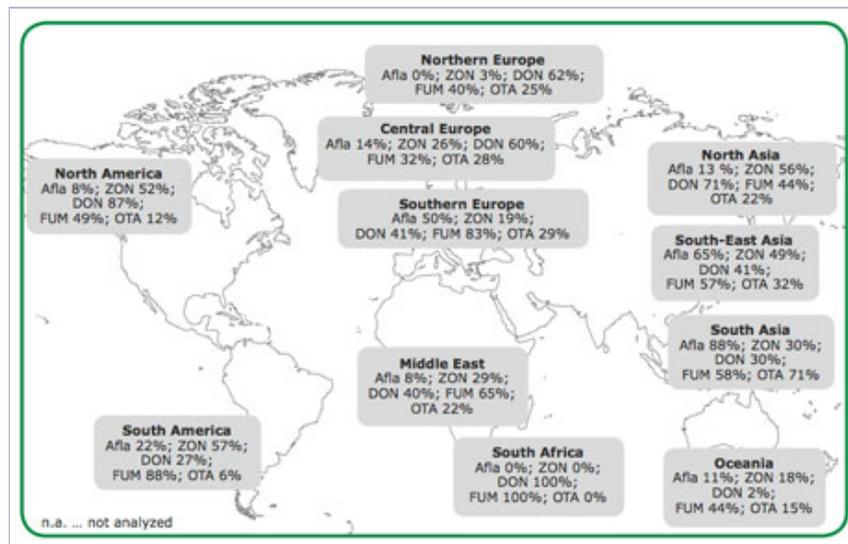
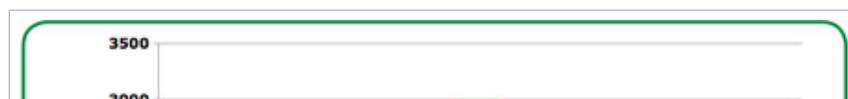


Figure 1: Prevalence of mycotoxins in different geographic regions

As seen in Figure 2, from all surveyed samples 28%, 42%, 58%, 55% and 26% tested positive for contamination with Afla, ZON, DON, FUM and OTA, respectively.



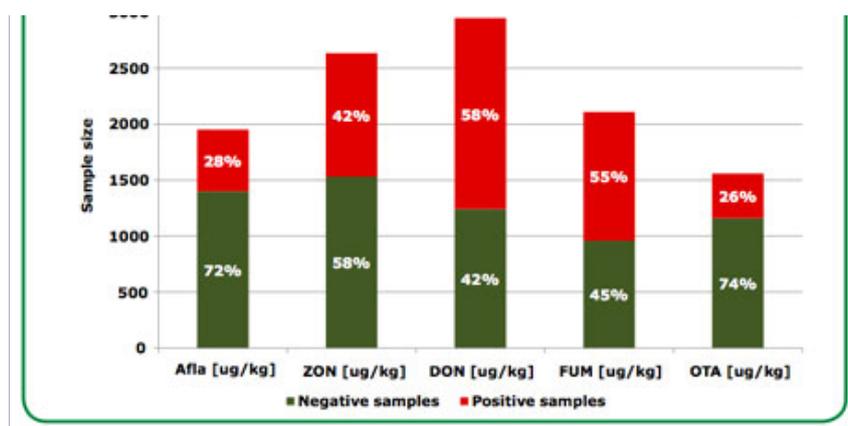


Figure 2: Global occurrence of mycotoxins 2010

From *Figure 3*, it is obvious that mycotoxins are an ubiquitous problem as 78% of the analyzed samples show the presence of, at least, one mycotoxin. The presence of more than one mycotoxin in 42% of the samples raises the attention to the problem of synergistic effects caused by multiple mycotoxins in animal feeds.

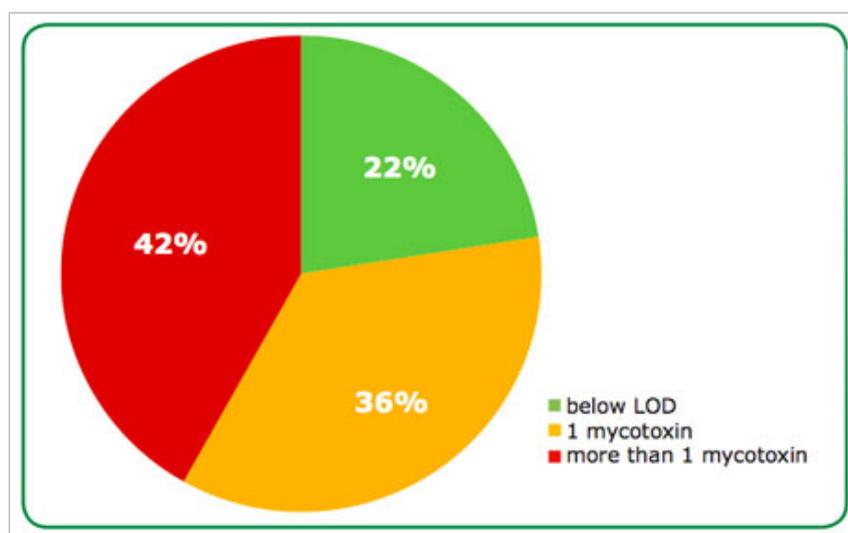


Figure 3: Global co-occurrence of mycotoxins

Tables 1 to 5 present an overview of the survey with the number of analyzed samples, the percentage of positive samples, the average of positive results and the maximum contamination found.

Table 1 - 6: Mycotoxin analysis results by different regions

Asia	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	1331	1385	1389	1339	1309
Positive [%]	32	48	55	45	27
Average of positive [µg/kg]	51	310	934	1325	7
Maximum [µg/kg]	4687	16712	19141	13862	174

Europe	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	74	759	1103	70	90
Positive [%]	28	23	59	50	28
Average of positive [$\mu\text{g}/\text{kg}$]	8	112	1539	2261	17
Maximum [$\mu\text{g}/\text{kg}$]	103	1045	49000	7260	331

North America	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	86	262	262	243	73
Positive [%]	8	52	87	49	12
Average of positive [$\mu\text{g}/\text{kg}$]	19	237	1709	1407	3
Maximum [$\mu\text{g}/\text{kg}$]	69	2593	24900	22900	14

South America	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	420	191	157	431	62
Positive [%]	22	57	27	88	6
Average of positive [$\mu\text{g}/\text{kg}$]	8	226	273	2868	1
Maximum [$\mu\text{g}/\text{kg}$]	273	5930	2520	53700	1

Middle East	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	38	35	35	23	23
Positive [%]	8	29	40	65	22
Average of positive [$\mu\text{g}/\text{kg}$]	1	58	395	402	2
Maximum [$\mu\text{g}/\text{kg}$]	2	93	1019	851	3

South Africa	Afla	ZON	DON	FUM	OTA
Numbers of samples tested	1	1	1	1	1

Positive [%]	0	0	100	100	0
Average of positive [$\mu\text{g}/\text{kg}$]	0	0	197	121	0
Maximum [$\mu\text{g}/\text{kg}$]	0	0	197	121	0

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