Data present at PSA Latin American Meeting 2024

- At the PSA Latin American Scientific Conference in Foz do Iguaçu, in October 2024, **Pegasus Science** released mycotoxin occurrence results generated by its **PegasusMycostat** research system.
- The data presented was extracted from an extensive database made up of more than 2.5 million analyzes carried out in 89 countries, covering all continents.
- The main objective of the presentation was to disseminate results observed in the Americas, highlighting the main mycotoxins detected in poultry production. Furthermore, a simplified risk analysis was presented for each mycotoxin, allowing a better understanding of the risks associated with mycotoxin contamination in different countries on the **American continent**.
- Data presented here provide a comprehensive view of the prevalence and risk of mycotoxins, contributing to the formulation of mitigation strategies and the improvement of food safety. **Pegasus Science** encourages the use of this information to make more assertive decisions to control risks related to mycotoxin contamination.

Sponsors:

Occurrence of the most important mycotoxins - GLOBAL - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)	Average of positives (ppb)	Maximum (ppb)
Total Fumonisins (B1+B2)	211,339	74	1,383	1,888	764,000
Patulin	11,010	50	15.9	31.5	9,201
Deoxynivalenol	259,037	45	334.5	854.2	672,833
Zearalenone	313,245	35	76.9	238.0	378,750
Nivalenol	16,254	31	107.3	398.6	6,776
Total Aflatoxins (B1+B2+G1+G2)	354,894	27	12.3	43.3	27,519
15-AcDON	10,390	23	106.5	403.3	4,811
HT-2 Toxin	12,873	19	85.3	544.0	9,786
3-AcDON	10,458	15	32.9	161.7	13,109
Cyclopiazonic Acid	1,862	13	2.1	12.1	270.0
Citrinin	1,694	11	26.4	101.6	25,487
T-2 Toxin	52,240	10	18.8	405.2	7,500
Fusarenon-X	3,279	10	35.4	235.6	3,204
Ochratoxin A	118,590	6	5.1	83.3	22,384
DAS (diacetoxyscirpenol)	5,793	3	2.8	98.5	4,300
TOTAL	1.382,958	25	-	-	-

Occurrence of mycotoxins in maize - WORLD - 1986 to 2024

Mycotoxin	Number of samples	Prevalence (%)	Average (ppb)	Average of positives (ppb)	Maximum (ppb)
Fumonisins	137,791	84	1,794	2,134	764,000
Nivalenol	4,564	45	185	470	6,776
15-AcDON	3,239	38	197	497	4,811
Deoxynivalenol	108,464	33	123	671	84,860
Zearalenone	155,000	32	47	165	77,325
Aflatoxins	179,914	30	13	41	27,519
HT-2	2,875	27	67	668	9,786
3-AcDON	3,075	18	30	143	1,047
Cyclopiazonic Ac	951	17	4	12	181
Fusarenon X	882	16	51	265	3,204
Citrinin	980	11	13	47	5,074
T-2	22,826	9	14	561	6,062
Ochratoxin A	46,846	4	3	165	22,384
Patulin	151	4	0	-	-
DAS	1,892	3	2	50	257
SUM/AVERAGE	**669,450**	**40**	**-**	**-**	**-**

Co-occurrence of mycotoxins in maize - WORLD - 1986 to 2024

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Mycotoxin	Number of samples	Prevalence (%)	Average 1st (ppb)	Average 2nd (ppb)	Average 3rd (ppb)
Zea + Fumo	80,710	59	43	1,667	-
Afla + Fumo	89,610	54	5	1,730	-
Fumo + Don	68,838	53	1,652	81	-
Afla + Zea + Fumo	76,189	47	4	42	1,652
Zea + Fumo + Don	64,394	45	36	1,608	80
Fumo + Ota	26,426	42	1,527	1	-
Afla + Fumo + Don	64,794	41	3	1,630	79
Zea + Fumo + Ota	24,849	39	40	1,493	1
Afla + Fumo + Ota	24,774	34	4	1,520	1
Fumo + Don + Ota	23,811	33	1,535	116	1
Afla + Zea	107,988	30	15	42	-
Zea + Don	68,753	27	41	93	-
Afla + Zea + Don	63,309	23	4	36	81
Afla + Don	66,586	19	4	80	-
Zea + Don + Ota	23,527	17	40	120	1
Afla + Zea + Ota	29,517	17	27	46	3
Zea + Ota	31,420	15	46	3	-
Afla + Don + Ota	23,050	12	4	121	1
Afla + Ota	31,234	12	27	3	-
Don + Ota	24,847	9	116	1	-
TOTAL DOUBLES	**596,412**	**36**	-	-	-
TOTAL TRIPLES	**418,214**	**34**	-	-	-

Occurrence of Aflatoxins in products related to poultry associated to Country Mycotoxin Risk - America - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)
Poultry Feed	332	91	94.4
Animal Feed	40,124	38	15.9
Corn	179,759	30	13.4
Broilers Feed	6,374	26	1.9
Rice	7,311	18	7.6
Triticale	193	17	4.3
Sorghum	2,472	15	1.8
Soybeans	9,565	15	1.0
Light Wheat	256	11	21.8
Millet	420	11	57.3
Barley	3,167	7.0	1.2
Premix	235	6.0	1.2
Wheat	19,614	6.0	1.4
TOTAL	**269,822**	**22**	**17.2**

Country	Number of samples	CMR
Argentina	1384	12
Peru	1685	62
Colombia	410	74
Chile	671	78
Bolivia	1207	79
United States	1225	188
Brazil	250295	376
Mexico	842	441
Ecuador	155	489
Costa Rica	352	525

$$CMR=\left\{[AC\,(\bar{x})]*PR\left(\%=\frac{+\Sigma n}{\Sigma n}\right)\right\}$$

AC=Average contamination
PR=Prevalence

Occurrence of Fumonisins in products related to poultry associated to Country Mycotoxin Risk - America - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)
Corn	137,491	84	1,793.8
Broilers Feed	7,235	83	694.8
Animal Feed	24,192	77	1,168.5
Cereals	2,891	50	892.0
Sorghum	1,157	22	259.3
Rice	1,502	20	133.1
Wheat	9,399	16	146.9
Soybeans	4,299	12	160.6
TOTAL	188,166	45	655.8

Country	Number of samples	CMR
United States	3967	76
Bolivia	1233	89
Mexico	254	93
Brazil	148468	104
Ecuador	91	127
Argentina	1300	152
Colombia	380	239
Peru	1747	271

$$CMR = \left\{ [AC(\bar{x})] * PR\left(\% = \frac{+\Sigma n}{\Sigma n}\right) \right\}$$

AC=Average contamination
PR=Prevalence

Occurrence of Deoxynivalenol in products related to poultry associated to Country Mycotoxin Risk - America - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)
Triticale	311	85	1,1
Wheat	52,470	69	658.9
Barley	28,389	65	765.6
Premix	194	63	2,6
Rye	303	63	191.7
Cereals	5,939	54	213.3
Broilers Feed	5,151	41	214.2
Animal Feed	13,733	39	203.3
Oat	2,373	33	183.5
Corn	108,288	33	122.7
Poultry Feed	300	29	278.0
Millet	161	19	65.3
Soybeanmeals	4,898	10	57.8
Rice	3,342	10	291.9
TOTAL	225,852	44	502.6

Country	Number of samples	CMR
Bolivia	1075	1
Argentina	1130	20
Chile	225	30
Colombia	386	56
Ecuador	117	74
Brazil	169784	111
Mexico	265	126
Peru	1918	204
United States	2699	857

$$CMR=\left\{[AC\,(\bar{x})]*PR\left(\%=\frac{+\Sigma n}{\Sigma n}\right)\right\}$$

AC=Average contamination
PR=Prevalence

Occurrence of Ochratoxin A in products related to poultry associated to Country Mycotoxin Risk - America - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)
Poultry Feed	271	32	20.1
Sorghum	582	25	10.1
Cereals	2,996	24	40.4
Oat	1,295	15	17.1
Millet	341	11	57.6
Rice	5,674	8	2.2
Broilers Feed	558	8	0.2
Barley	9,676	6	1.0
Soybeans	2,632	6	0.6
Wheat	16,221	4	0.9
Millet	46,819	4	3.2
Malt	9,771	2	0.3
TOTAL	96,836	12	12.7

Country	Number of samples	CMR
Bolivia	407	0
Colombia	111	0
Ecuador	65	0
Peru	763	0
Argentina	139	2
Brazil	79697	5
Mexico	265	65
United States	1088	79
Chile	632	315

$$CMR=\left\{[AC\,(\bar{x})]*PR\left(\%=\frac{+\Sigma n}{\Sigma n}\right)\right\}$$

AC=Average contamination
PR=Prevalence

Occurrence of T-2 in products related to poultry - America - 1986 to 2024

Matrix	Number of samples	Prevalence (%)	Average (ppb)	Average of positives (ppb)	Maximum (ppb)
Oat	904	42	145.7	362.7	1,102
Poultry Feed	101	34	442.6	1,277	7,500
Barley	2,675	26	12.0	194.0	440.0
Wheat	5,119	15	38.6	574.1	1,506
Corn	22,751	9	14.3	561.1	6,062
Soybeans	2,159	5	1.8	205.3	422.5
Rice	509	4	1.9	140.0	171.6
Broilers Feed	1,189	3	0.1	137.9	194.0
Sorghum	398	2	9.0	397.3	691.3
Animal Feed	8,111	2	3.6	141.2	1,718
Millet	122	1	102.9	2,738	338.8
Malt	580	1	6.8	828.6	153.0
TOTAL	44,933	12	64.9	-	-

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