A&P Nutrition

Global mycotoxin survey of 2025-harvested corn

Jog Raj, Hunor Farkaš, Miladin Dogan, Goran Grubješić, Jovana Dubajić, Zdenka Jakovčević, and Marko Vasiljević

April 2026

Contents

Introduction

Corn is one of the most important grown cereal crops globally and is essential for human and animal nutrition.

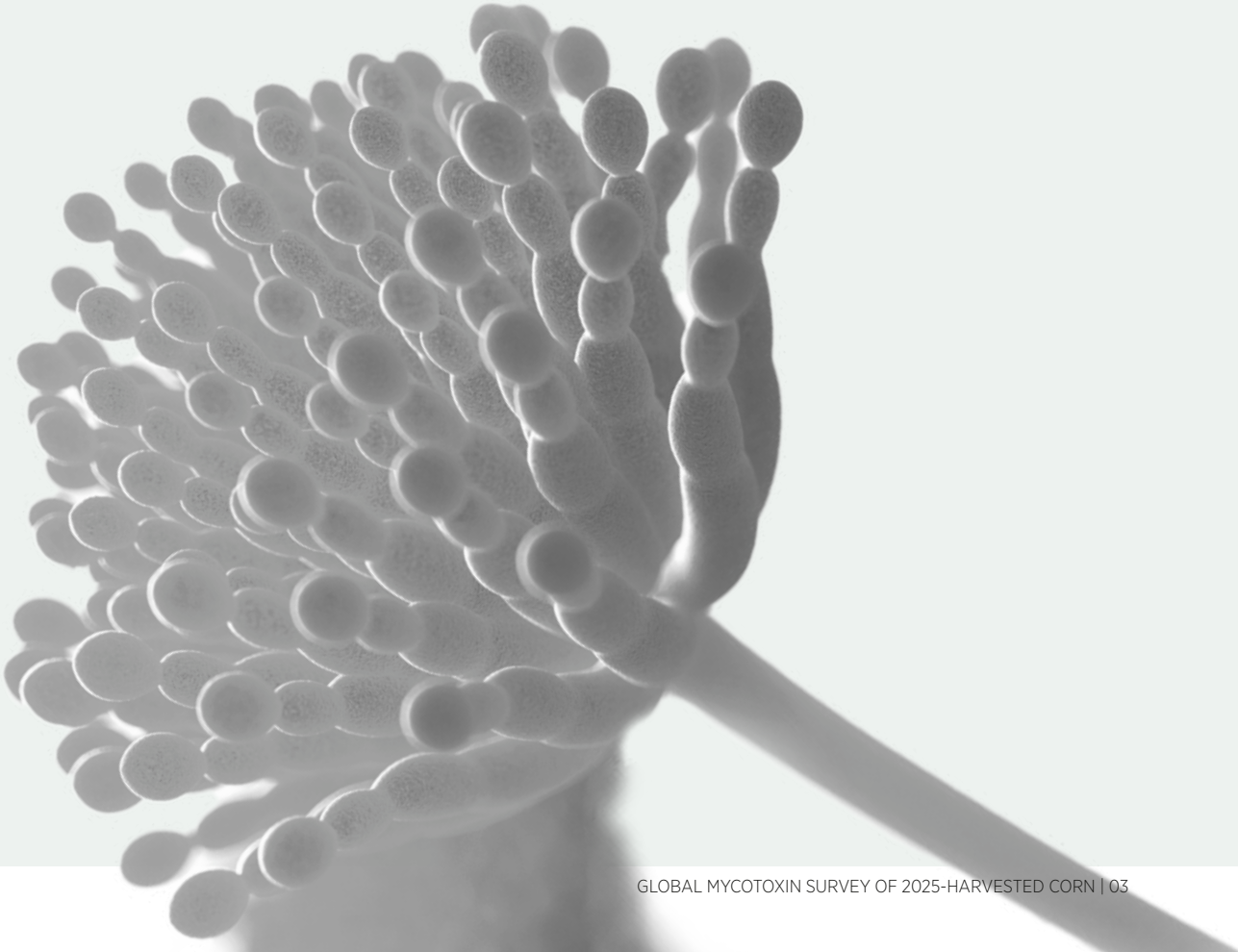
However, its importance in the food and feed sectors is associated with concerns over contamination by mycotoxins: toxic secondary metabolites produced by certain species of fungi.

These toxins pose a severe threat to food and feed safety due to their potential health impacts related to the teratogenic, nephrotoxic, hepatotoxic, neurotoxic, mutagenic, and immunosuppressive effects.

Goals

The corn samples were delivered to PATENT CO. lab and Betagro between Sep 2025 & Feb 2026.

The aim of the present study was to quantify mycotoxins in corn samples from different regions of Algeria, Argentina, Austria, Brazil, Chile, China, Colombia, Costa Rica, Ecuador, Mexico, Morocco, Peru, Philippines, Serbia, South Africa, South Korea, Thailand, and Vietnam using LC-MS/MS based multi-mycotoxin method.



PATENT CO. research lab, Mišićevo, Serbia

European Union (EU) regulated and related mycotoxins: aflatoxins (AFB_1, AFB_2, AFG_1, AFG_2), deoxynivalenol (DON), fumonisins (FB_1, FB_2, FB_3), HT-2 toxin, ochratoxin A (OTA), T-2 toxin, and zearalenone (ZEN).

Emerging mycotoxins: beauvericin (BEA), enniatin (ENNA, ENNA1, ENNB, ENNB1), fusaric acid (FA), and moniliformin (MON).

Other mycotoxins: 15-acetyl deoxynivalenol (15-ADON), 3-acetyl deoxynivalenol (3-ADON), deoxynivalenol 3-glucoside (D-3-G), diacetoxyscirpenol (DAS), neosolaniol (NEO), nivalenol (NIV), zearalanone (ZAN), α – zearalenol (α-ZEL) and β – zearalenol (β-ZEL), diacetoxyscirpenol, neosolaniol, fusarenon x, citrinin, patulin, and alternariol.

Countries:

Algeria, Argentina, Austria, Colombia, Costa Rica, Chile, Ecuador, Serbia, South Africa, South Korea, Mexico, Morocco, Peru.

Samples analysed using LC-MS/MS (Agilent 6460 series)[1], at PATENT CO., Serbia.

Betagro Science Centre, Khlong Luang, Thailand

Mycotoxins: aflatoxins (AFB_1, AFB_2, AFG_1, AFG_2), deoxynivalenol (DON), fumonisins (FB_1 and FB_2), ochratoxin A (OTA), T-2 toxin, and zearalenone (ZEN).

Samples were analysed using LC-MS/MS (Waters, Xevo TQ-X)[2] at Betagro Science Centre, Khlong Luang, Thailand.

Countries:
China, Philippines, Thailand, and Vietnam.

—

In **Brazil**, samples were tested using ELISA in an external laboratory.

Mycotoxins: aflatoxin (total AFB_1, AFB_2, AFG_1, and AFG_2), deoxynivalenol, fumonisins (total FB_1, FB_2, and FB_3), and zearalenone.

[1]*Farkas et al., 2025 (46 Mycotoxins Workshop, May 25-28, 2025, Martina Franka, Italy)*

[2]*Kongcheep et al., 2026 (47 Mycotoxins Workshop, June 01-03, 2026. Berlin, Germany)*

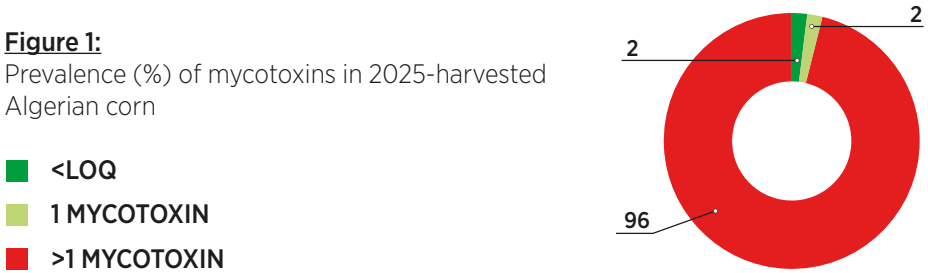
Results

Algeria

Table 1:
Mycotoxin contamination in corn samples from Algeria in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**29**	**141**	**15**	**0.62**	**22**
AFB_2	**3**	**6**	**3**	**2**	**12**
AFG_1	**23**	**33**	**28**	**5**	**10**
BEA	7	69	2	1.1	60
DON	**285**	**887**	**267**	**37**	**52**
FA	44	381	29	5	100
FB_1	**816**	**3,235**	**673**	**71**	**98**
FB_2	**307**	**1,326**	**241**	**31**	**98**
FB_3	**115**	**323**	**102**	**27**	**74**
MON	36	252	12	5	24
ZEN	**482**	**2,932**	**66**	**10**	**20**

Figure 1:
Prevalence (%) of mycotoxins in 2025-harvested Algerian corn



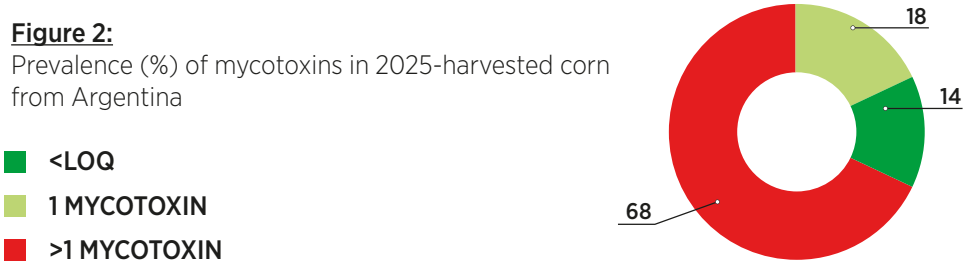
- **96% of corn samples from Algeria were contaminated with more than one mycotoxin.**
- **BEA, FA, and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Algeria poses a high risk in ruminants and aquaculture, and a moderate risk in poultry.**

Argentina

Table 2:
Mycotoxin contamination in corn samples from Argentina in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	38	52	35	27	6
BEA	56	668	7	38	30
DON	**487**	**2,388**	**140**	**36**	**28**
FA	162	1,505	66	49	76
FB_1	**1,758**	**6,054**	**1,062**	**27**	**66**
FB_2	**735**	**2,373**	**439**	**7**	**62**
FB_3	**186**	**687**	**98**	**4**	**60**
MON	43	201	20	1.1	16

Figure 2:
Prevalence (%) of mycotoxins in 2025-harvested corn from Argentina



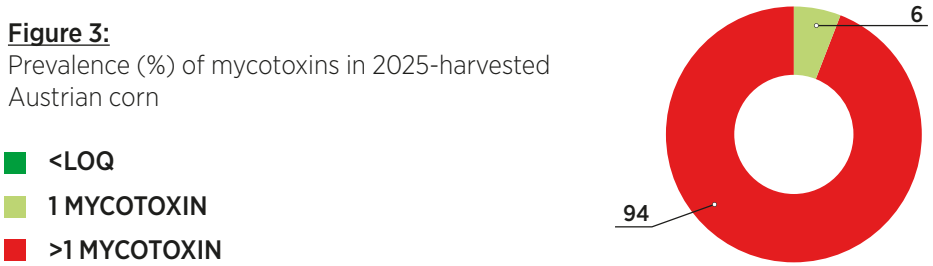
- **68% of corn samples from Argentina were contaminated with more than one mycotoxin.**
- **FA and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Argentina poses a high risk in pigs, and a moderate risk in poultry, ruminants, and aquaculture.**

Austria

Table 3:
Mycotoxin contamination in corn samples from Austria in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	133	376	41	20	41
BEA	29	166	13	3	88
DON	**519**	**3,551**	**141**	**47**	**94**
ENNA	4	4	4	4	6
$ENNA_1$	4	14	2	1	29
ENNB	22	105	4	2	65
$ENNB_1$	13	51	4	1	41
FA	387	2,791	287	6	88
FB_1	**492**	**538**	**492**	**446**	**12**
FB_2	**206**	**216**	**206**	**195**	**12**
FB_3	**56**	**60**	**56**	**51**	**12**
MON	11	24	10	3	29
T-2	**55**	**98**	**55**	**13**	**12**
ZEN	**87**	**242**	**73**	**11**	**47**

Figure 3:
Prevalence (%) of mycotoxins in 2025-harvested Austrian corn



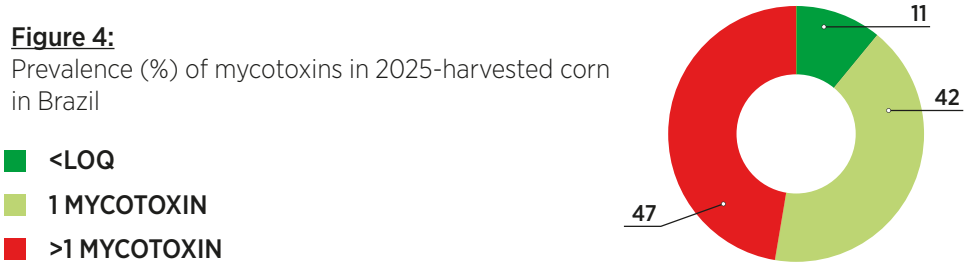
- **94% of corn samples from Austria were contaminated with more than one mycotoxin.**
- **BEA, DON, ENNs, and FA were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Austria poses a moderate risk in all species.**

Brazil

Table 4:
Mycotoxin contamination in corn samples from Brazil in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1+AFB_2+ AFG_1+AFG_2	**9**	**400**	**3**	**2**	**26**
DON	**426**	**1,990**	**313**	**202**	**7**
FB_1+FB_2+FB_3	**1,124**	**19,180**	**940**	**200**	**82**
ZEN	**53**	**240**	**49**	**20**	**27**

Figure 4:
Prevalence (%) of mycotoxins in 2025-harvested corn in Brazil



- **Fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Brazil poses a moderate risk in all species.**

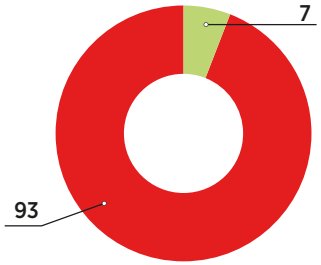
Critical risk
High risk
Moderate risk
Low risk

Chile

Table 5:
Mycotoxin contamination in corn samples from Chile in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**1**	**1**	**0**	**0**	**14**
BEA	24	288	3	1	79
DON	**128**	**686**	**71**	**28**	**41**
FA	147	1,198	43	7	93
FB_1	**832**	**3,218**	**815**	**33**	**52**
FB_2	**434**	**1,269**	**426**	**26**	**38**
FB_3	**135**	**311**	**132**	**33**	**31**
MON	31	53	31	10	7
OTA	**2**	**5**	**2**	**1**	**14**

Figure 5:
Prevalence (%) of mycotoxins in 2025-harvested corn in Chile



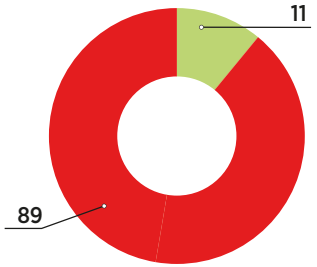
- **93% of corn samples from Chile were contaminated with more than one mycotoxin.**
- **BEA, FA, and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Chile poses a moderate risk in pigs, and a low risk in poultry, ruminants, and aquaculture.**

China

Table 6:
Mycotoxin contamination in corn samples from China in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**0.7**	**1.3**	**0.7**	**0.4**	**4**
DON	**1,260**	**7,245**	**738**	**68**	**50**
FB_1	**1,471**	**6,574**	**627**	**24**	**46**
FB_2	**746**	**3,242**	**322**	**27**	**41**
ZEN	**276**	**1,920**	**69**	**10**	**48**

Figure 6:
Prevalence (%) of mycotoxins in 2025-harvested corn in China



- **89% of corn samples from China were contaminated with more than 1 mycotoxin.**
- **DON, fumonisins, and ZEN were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in China poses a high risk in pigs, ruminants, and aquaculture, and a moderate risk in poultry.**

Colombia

Table 7:
Mycotoxin contamination in corn samples from Colombia in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**7**	**16**	**5**	**2**	**12**
BEA	14	79	5	1	77
DON	**265**	**1,134**	**230**	**51**	**44**
FA	23	87	15	3	98
FB_1	**503**	**1,932**	**346**	**33**	**81**
FB_2	**205**	**761**	**142**	**26**	**79**
FB_3	**65**	**189**	**49**	**26**	**60**
MON	24	89	14	3	42
ZEN	**20**	**33**	**20**	**8**	**7**

- **Co-occurrence with multiple mycotoxins affected all corn samples from Colombia.**
- **BEA, FA, and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Colombia poses a moderate risk in aquaculture, and a low risk in poultry, pigs, and ruminants.**

Costa Rica

Table 8:
Mycotoxin contamination in corn samples from Costa Rica in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	86	221	71	25	64
AFB_1	**3**	**4**	**3**	**1**	**14**
BEA	88	395	31	3	100
DON	**1,555**	**5,878**	**840**	**189**	**93**
ENNB	32	234	3	1	57
$ENNB_1$	12	23	12	2	14
FA	360	1,263	137	51	100
FB_1	**2,934**	**13,190**	**654**	**254**	**93**
FB_2	**1,024**	**4,771**	**233**	**100**	**93**
FB_3	**425**	**2,027**	**58**	**35**	**93**
MON	77	274	15	6	71
ZEN	**87**	**341**	**33**	**16**	**100**

- **Co-occurrence with multiple mycotoxins affected all corn samples from Costa Rica.**
- **BEA, DON, ENNs, FA, fumonisins, MON, and ZEN were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Costa Rica poses a high risk in pigs, ruminants, and aquaculture, and a moderate risk in poultry.**

Critical risk
High risk
Moderate risk
Low risk

Ecuador

Table 9:
Mycotoxin contamination in corn samples from Ecuador in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**13**	**124**	**4**	**1**	**58**
BEA	30	287	6	1	64
FA	152	663	122	16	94
FB_1	**1,141**	**4,087**	**876**	**174**	**94**
FB_2	**453**	**1,870**	**346**	**63**	**94**
FB_3	**131**	**409**	**102**	**26**	**89**
MON	14	60	8	3	19
ZEN	**51**	**158**	**25**	**12**	**14**

- **Co-occurrence with multiple mycotoxins affected all corn samples from Ecuador.**
- **AFB_1, BEA, FA, and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Ecuador poses a high risk in ruminants, a moderate risk in poultry and pigs, and a low risk in aquaculture.**

Mexico

Table 10:
Mycotoxin contamination in corn samples from Mexico in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	47	79	46	21	13
AFB_1	**11**	**311**	**1**	**0.4**	**40**
AFB_2	**2**	**12**	**1**	**0.4**	**8**
BEA	30	194	17	1.1	97
DON	**410**	**3,613**	**176**	**25**	**78**
FA	130	614	106	18	99
FB_1	**1,206**	**7,449**	**829**	**60**	**91**
FB_2	**470**	**3,009**	**298**	**25**	**91**
FB_3	**150**	**877**	**138**	**27**	**85**
MON	21	127	15	4	81
OTA	**27**	**122**	**3**	**2**	**5**
ZEN	**51**	**429**	**19**	**5**	**38**

- **Co-occurrence with multiple mycotoxins affected all corn samples from Mexico.**
- **BEA, DON, FA, fumonisins, and MON were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Mexico poses a high risk in ruminants, and a moderate risk in poultry, pigs, and aquaculture.**

Morocco

Table 11:
Mycotoxin contamination in corn samples from Morocco in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	35	64	28	23	12
BEA	6	51	5	1	98
DON	**351**	**1,630**	**156**	**37**	**40**
FA	95	326	64	17	98
FB_1	**926**	**3,758**	**634**	**57**	**100**
FB_2	**727**	**15,143**	**276**	**28**	**98**
FB_3	**117**	**406**	**88**	**26**	**88**
MON	12	26	6	4	16

- **Co-occurrence with multiple mycotoxins affected all corn samples from Morocco.**
- **BEA, FA, and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Morocco poses a moderate risk in aquaculture, and a low risk in poultry and ruminants.**

Peru

Table 12:
Mycotoxin contamination in corn samples from Peru in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**2**	**12**	**1**	**0.4**	**49**
BEA	4	18	3	1	84
DON	**273**	**473**	**248**	**90**	**81**
FA	249	869	191	43	100
FB_1	**3,202**	**15,691**	**2,019**	**284**	**100**
FB_2	**1,216**	**6,119**	**715**	**134**	**100**
FB_3	**505**	**4,224**	**210**	**30**	**100**
MON	7	17	5	4	14
ZEN	**53**	**230**	**36**	**10**	**63**

- **Co-occurrence with multiple mycotoxins affected all corn samples from Peru.**
- **AFB_1, DON, BEA, FA, fumonisins, and ZEN were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Peru poses a high risk in all species.**

Critical risk
High risk
Moderate risk
Low risk

Philippines

Table 13:
Mycotoxin contamination in corn samples from Philippines in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	455	1,442	356	16	100
AFB_2	16	59	10	1	98
FB_1	320	1,150	344	22	98
FB_2	140	459	132	22	80
ZEN	191	357	182	17	14

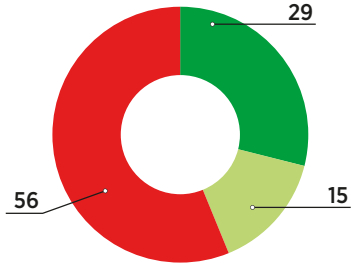
- **Co-occurrence with multiple mycotoxins affected all corn samples from Philippines.**
- **Average aflatoxin concentrations were critical.**
- **Aflatoxins and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Philippines poses a critical risk in all species.**

Serbia

Table 14:
Mycotoxin contamination in corn samples from Serbia in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	60	521	25	0	56
AFB_2	4	21	2	0	31
AFG_1	144	297	148	11	6
FB_1	1,188	10,944	449	50	50
FB_2	510	4,319	211	51	43

Figure 7:
Prevalence (%) of mycotoxins in 2025-harvested corn in Serbia



- **Average aflatoxin concentrations in corn samples from Serbia were critical.**
- **Aflatoxins and fumonisins were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in Serbia poses a high risk in all animal species.**

South Africa

Table 15:
Mycotoxin contamination in corn samples from South Africa in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
15-ADON	114	723	97	23	90
BEA	100	1,592	8	1	95
D-3-G	62	109	63	5	10
DON	**1,649**	**13,128**	**1,197**	**55**	**97**
FA	126	1,250	41	4	96
FB_1	**858**	**3,444**	**277**	**24**	**29**
FB_2	**435**	**1,602**	**278**	**18**	**23**
FB_3	**149**	**403**	**105**	**13**	**18**
MON	25	138	14	3	38
OTA	**5**	**11**	**4**	**2**	**14**
ZEN	**84**	**789**	**47**	**8**	**62**

- **Co-occurrence with multiple mycotoxins affected all corn samples from South Africa.**
- **BEA, DON, FA, and ZEN were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in South Africa poses a high risk in pigs and aquaculture, and a moderate risk in poultry and ruminants.**

South Korea

Table 16:
Mycotoxin contamination in corn samples from South Korea in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	**0.7**	**0.9**	**0.7**	**0.4**	**4**
15-ADON	46	52	46	40	4
BEA	2.3	3	2	2	100
DON	**201**	**302**	**194**	**151**	**100**
FA	35	74	32	23	100
HT-2	**16**	**22**	**14**	**11**	**8**
MON	4	6	4	3	66
ZEN	**11**	**62**	**9**	**6**	**74**

- **Co-occurrence with multiple mycotoxins affected all corn samples from South Korea.**
- **BEA, DON, FA, MON, and ZEN were the dominant mycotoxins detected.**
- **Present average mycotoxin exposure in South Korea poses a low risk in all animal species.**

Critical risk
High risk
Moderate risk
Low risk

Thailand

Table 17:
Mycotoxin contamination in corn samples from Thailand in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	34	130	23	3	19
AFB_2	6	9	6	2	10
DON	561	3,391	226	64	49
FB_1	2,120	55,151	626	25	94
FB_2	637	18,935	144	25	92
ZEN	76	587	32	8	51

- Co-occurrence with multiple mycotoxins affected all corn samples from Thailand.
- Average aflatoxin and fumonisin concentrations were high.
- Aflatoxins and Fusarium mycotoxins (DON, fumonisins, and ZEN) were the dominant mycotoxins detected.
- Present average mycotoxin exposure in Thailand poses a critical risk in ruminants, and a high risk in poultry, pigs, and aquaculture.

Vietnam

Table 18:
Mycotoxin contamination in corn samples from Vietnam in 2025

	Average (ppb)	Maximum (ppb)	Median (ppb)	Minimum (ppb)	Prevalence (%)
AFB_1	22	86	1	1	47
AFB_2	4	8	4	1	16
DON	143	803	82	21	47
FB_1	964	2,030	919	141	100
FB_2	408	925	377	55	100
ZEN	47	164	38	11	47

- Co-occurrence with multiple mycotoxins affected all corn samples from Vietnam.
- Fumonisins were the dominant mycotoxins detected.
- Present average mycotoxin exposure in Algeria poses a high risk in ruminants, and a moderate risk in poultry, pigs, and aquaculture.

Critical risk
High risk
Moderate risk
Low risk

World map of mycotoxins

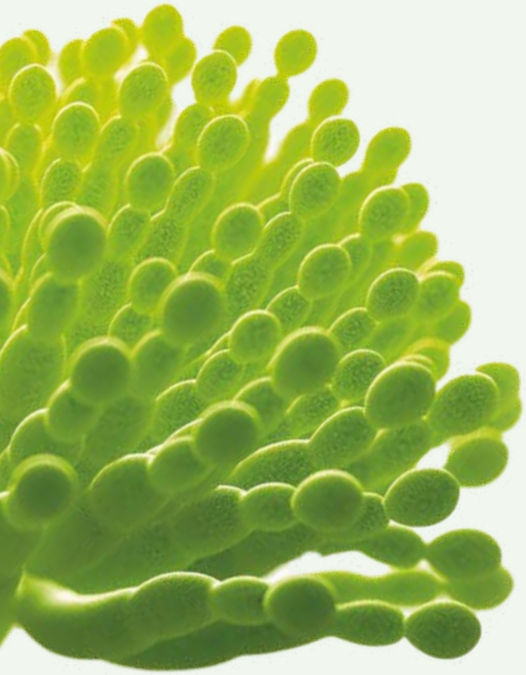
Summary of the global mycotoxin survey of 2025-harvested corn

This study provides valuable insights into the co-occurrence and co-contamination, of aflatoxins, emerging mycotoxins and Fusarium-produced mycotoxins in the majority of 2025-harvested corn samples from 18 countries.

Aflatoxins, particularly AFB_1, pose the most significant threat, frequently exceeding regulatory limits for both human and animal consumption. Fumonisins also remained a critical concern, similarly as in previous years, with levels potentially heightened by warmer temperatures during the growing season.

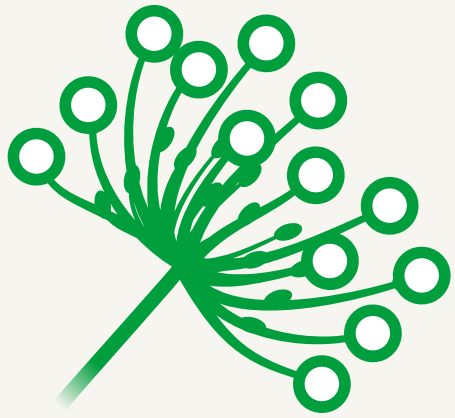
Co-occurrence has significant implications for food and feed safety, as combined exposure to multiple mycotoxins can lead to synergistic toxic effects, increasing human and animal health risks.

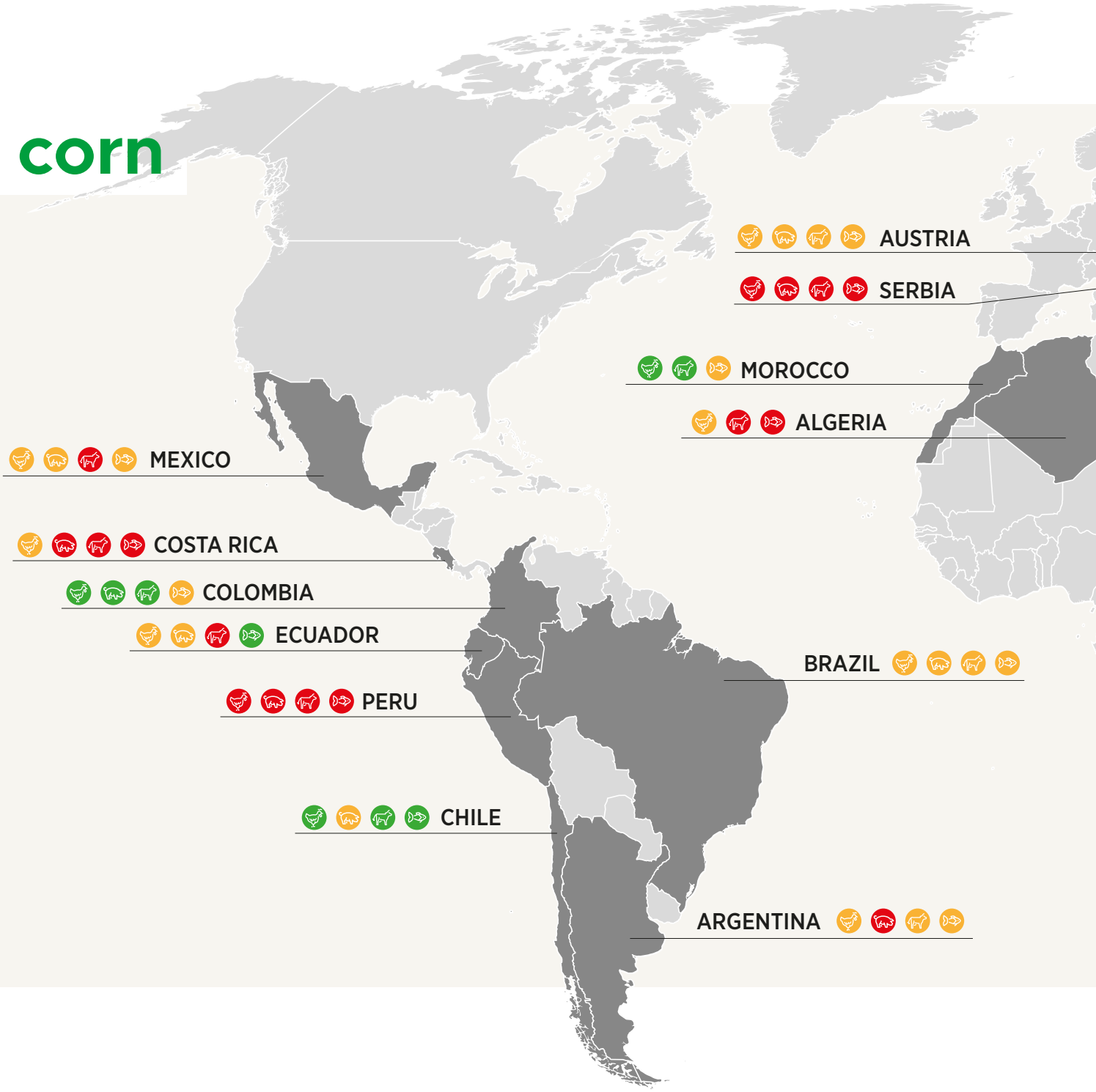
A&P Nutrition



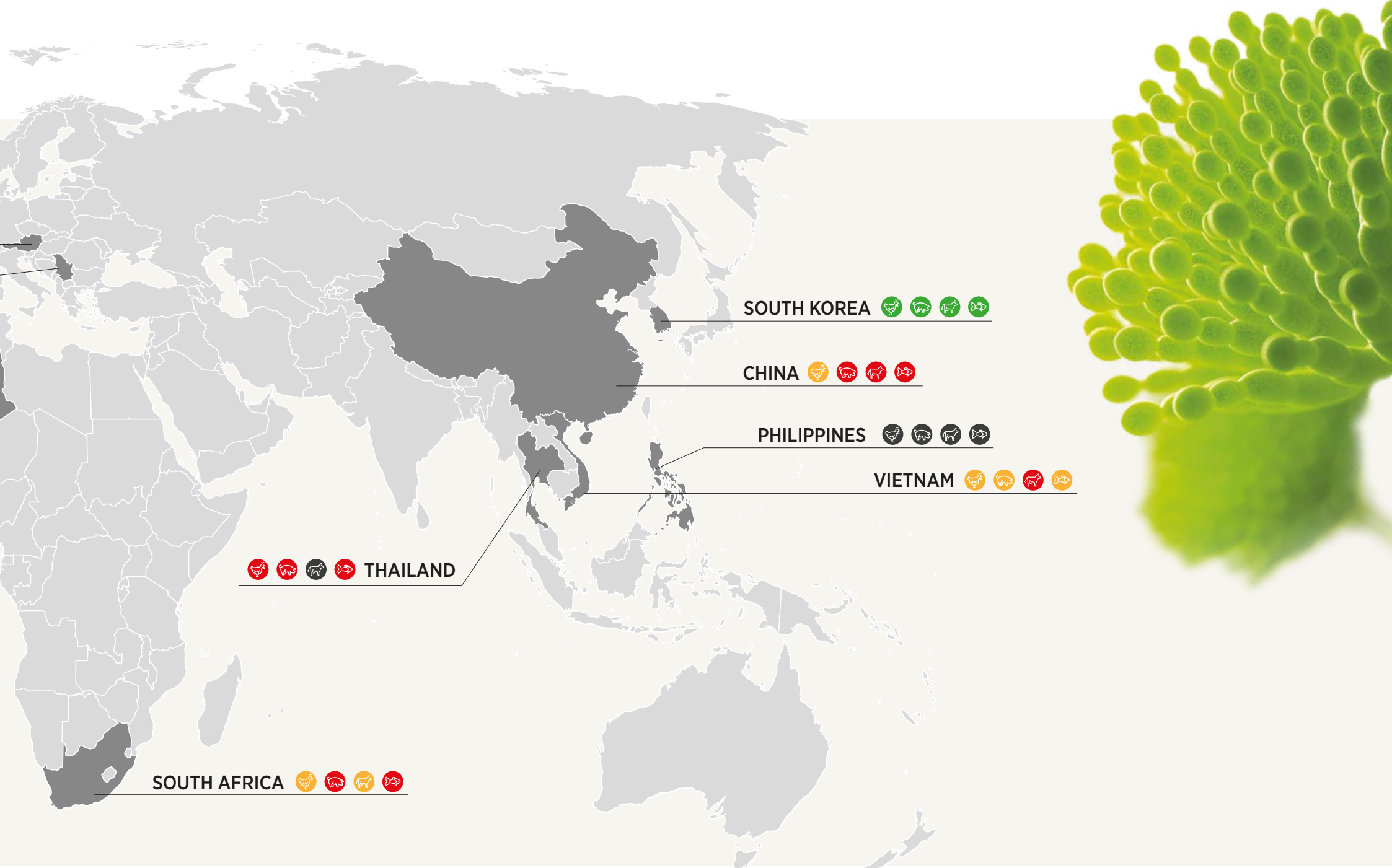
Country	Prevalence (%) of >1 mycotoxin per sample	Mycotoxins detected
ALGERIA	96	AFB_1, DON, FA, FB_1, FB_2, FB_3
ARGENTINA	68	FA, FB_1, FB_2, FB_3
AUSTRIA	94	DON, BEA, FA, MON, T-2, ZEN
BRAZIL	95	AFB_1, DON, FB_1, ZEN
CHINA	89	DON, FB_1
CHILE	93	BEA, FA, FB_1
COLOMBIA	100	BEA, FA, FB_1, FB_2, FB_3
COSTA RICA	100	BEA, DON, FA, FB_1, FB_2, FB_3, MON, ZEN
ECUADOR	100	AFB_1, BEA, DON, FA, FB_1, FB_2, FB_3
MEXICO	100	AFB_1, BEA, DON, FA, FB_1, FB_2, FB_3, MON
MOROCCO	100	BEA, FA, FB_1, FB_2, FB_3
PHILIPPINES	100	AFB_1, AFB_2, FB_1, FB_2
PERU	100	AFB_1, BEA, DON, FA, FB_1, FB_2, FB_3, ZEN
SERBIA	56	AFB_1, AFB_2, FB_1, FB_2, FB_3
SOUTH AFRICA	100	BEA, DON, FA
SOUTH KOREA	100	BEA, DON, FB_1, FB_2, FB_3, MON, ZEN
THAILAND	100	DON, FB_1, FB_2, ZEN
VIETNAM	100	AFB_1, DON, FB_1, FB_2

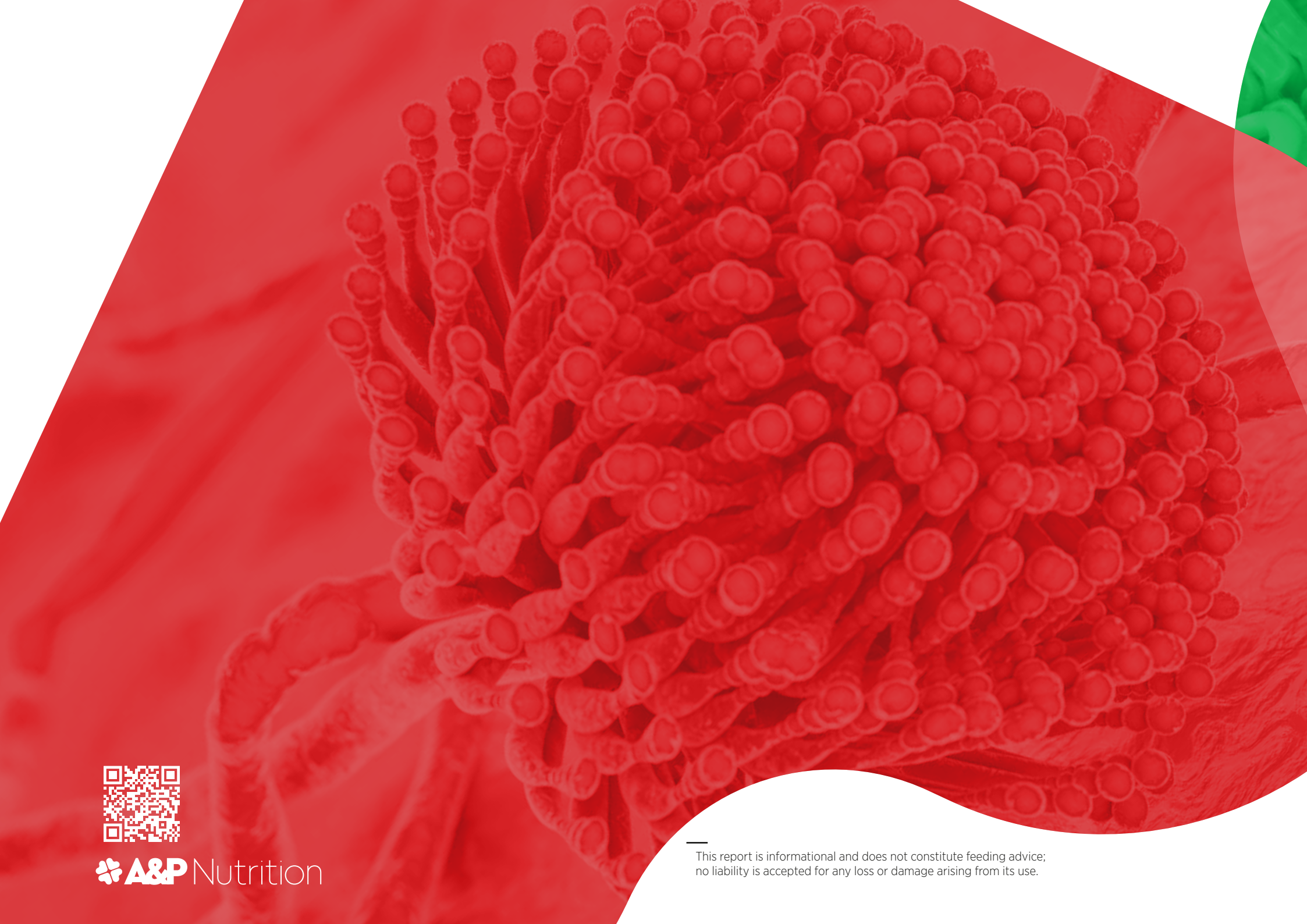
World map of mycotoxins in corn





- Low risk
- Moderate risk
- High risk
- Critical risk


SOUTH KOREA
CHINA
PHILIPPINES
VIETNAM
THAILAND
SOUTH AFRICA



A&P Nutrition

This report is informational and does not constitute feeding advice;
no liability is accepted for any loss or damage arising from its use.