

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

Region	Grade	Aflatoxin µg/kg				Fumonisin µg/kg				DON µg/kg				15-ADON µg/kg		Ochratoxin µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total LOQ: 20 µg/kg	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total LOQ: 100 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg						
15	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	177	ND	ND	ND	ND	ND	ND	ND	
15	WM1	ND	ND	ND	ND	ND	ND	43	ND	225	ND	ND	ND	ND	ND	ND	ND	ND	
15	WM3	ND	ND	ND	ND	ND	ND	ND	ND	876	135	ND	ND	ND	ND	ND	ND	ND	
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
16	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 106	146	ND	ND	ND	ND	ND	ND	
16	WM3	ND	ND	ND	ND	ND	ND	51	ND	51	1 776	261	ND	ND	ND	ND	ND	ND	
16	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	337	ND	ND	ND	ND	ND	ND	ND	
16	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	365	125	ND	ND	ND	ND	ND	ND	
16	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	469	ND	ND	ND	ND	ND	ND	ND	
16	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	321	ND	ND	ND	ND	ND	ND	ND	
16	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	246	ND	ND	ND	ND	ND	ND	ND	
16	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
16	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	58	ND	ND	58	130	ND	ND	ND	ND	ND	ND	
17	YM2	ND	ND	ND	ND	ND	ND	494	165	27	686	ND	ND	ND	ND	ND	ND	ND	
17	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	127	ND	ND	ND	ND	ND	ND	
17	YM1	ND	ND	ND	ND	ND	ND	45	ND	45	124	ND	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	139	22	ND	161	468	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	528	ND	ND	ND	ND	ND	ND	ND	
17	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	258	ND	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	WM3	ND	ND	ND	ND	ND	ND	371	107	21	499	315	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	222	120	ND	342	474	104	ND	ND	ND	ND	
17	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	549	145	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
17	WM1	ND	ND	ND	ND	ND	ND	ND	70	25	ND	95	308	ND	ND	ND	ND	ND	
17	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

Region	Grade	Aflatoxin µg/kg					Fumonisin µg/kg					DON µg/kg					Ochratoxin µg/kg	Zearalenone µg/kg	HT-2 µg/kg	T-2 µg/kg	
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total LOQ: 20 µg/kg	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total LOQ: 60 µg/kg	DON LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 100 µg/kg	LOQ: 5 µg/kg	LOQ: 20 µg/kg	LOD: 20 µg/kg	LOQ: 20 µg/kg	LOQ: 20 µg/kg			
23	WM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	COM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018(continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018(continue)

Region	Grade	Aflatoxin µg/kg				Fumonisin µg/kg				DON µg/kg				15-ADON µg/kg				Ochratoxin A µg/kg				Zearalenone µg/kg				HT-2 µg/kg			
		B ₁ LOQ: 5 µg/kg	B ₂ LOQ: 5 µg/kg	G ₁ LOQ: 5 µg/kg	G ₂ LOQ: 5 µg/kg	Total LOQ: 20 µg/kg	B ₁ LOQ: 20 µg/kg	B ₂ LOQ: 20 µg/kg	B ₃ LOQ: 20 µg/kg	Total LOQ: 100 µg/kg	DON LOQ: 100 µg/kg	15-ADON LOQ: 5 µg/kg	HT-2 LOQ: 20 µg/kg	T-2 LOQ: 20 µg/kg	Zearalenone LOQ: 20 µg/kg	Ochratoxin A LOQ: 5 µg/kg	HT-2 LOD: 20 µg/kg	T-2 LOD: 20 µg/kg											
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	747	156	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	612	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	187	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	88	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	608	176	21	805	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	682	218	27	927	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 057	410	73	1 540	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 057	410	73	1 540	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
31	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	ND	ND	ND	120	2 348	121	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	23	1 447	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	386	150	21	557	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	31	ND	ND	ND	31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	YM3	ND	ND	ND	ND	ND	ND	ND	ND	ND	31	ND	ND	ND	31	938	192	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	132	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 236	394	99	1 729	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	WM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	65	ND	185	131	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	423	160	30	613	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	YM1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	184	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
32	WM2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 434	410	96	1 940	1 927	133	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

TABLE 24: MYCOTOXIN RESULTS - MAIZE CROP QUALITY 2017/2018 (continue)

Note:

Note. Limit of quantitation (LOQ) means the lowest concentration level that can be quantified with acceptable precision and accuracy by the LC-MS/MS.

A concentration measured below the LOQ is reported as <LOQ.

Limit of detection (LOD) is the lowest concentration level that can be detected but not quantified and is 50% of the LOQ of each mycotoxin.

A concentration measured below the LOD is reported as not detected (ND).

TABLE 25: MYCOTOXIN RESULTS - SUMMARY OF SEASONS 2006/2007 TO 2017/2018

Season	Total Number of samples received	Number of samples tested for mycotoxins	Aflatoxin µg/kg	Fumonisin µg/kg	Deoxynivalenol µg/kg	Zearalenone µg/kg	Ochratoxin A µg/kg	T-2 Toxin µg/kg
			ave.	min.	max.	ave.	min.	max.
2006/2007	900	90	<1	0	9	640	0	4 500
2007/2008	900	100	0	0	2	470	0	5 500
2008/2009	810	90	0	0	0	490	0	3 300
*2009/2010	800	90	0	0	0	251	0	4 035
*2010/2011	693	325	0	0	0	468	0	7 048
**2011/2012	1 000	350	0	0	0	383	0	11 297
**2012/2013	1 000	350	0	0	0	530	0	11 243
**2013/2014	930	350	0	0	0	451	0	5 357
**2014/2015	1 000	350	2	0	48	357	0	3 382
**2015/2016	920	350	0	0	0	444	0	11 347
**2016/2017	1 000	350	0	0	0	471	0	6 059
**2017/2018	900	350	0	0	0	991	0	8 356
Total	11 753	3 235						
		Min.		0		0		
		Max.		48		11 347		445

* Sum of Aflatoxin (B₁; B₂; G₁; G₂) and sum of Fumonisin (B₁; B₂)

** Sum Of Aflatoxin (B₁; B₂; G₁; G₂) and sum of Fumonisin (B₁; B₂; G₁; G₂)
RSA averages calculated from averages per province.

Mycotoxin methodology

Technique used for season 2005/2006 - 2006/2007

The mycotoxin analyses were carried out in accordance with the Vicam Immunoaffinity Column Chromatography method using the different Vicam Instruction Manuals for the different mycotoxins. Detection of the toxins was done on a Fluorometer. The following range and limit of detection apply for each toxin:

Mycotoxin	Assay range µg/kg	LOD for maize µg/kg
Aflatoxin	0 - 300	1
Fumonisin	0 - 10 000	250
Deoxynivalenol	500 - 50 000	500
Zearalenone	0 - 5 000	100
Ochratoxin A	0 - 50	2
T - 2 Toxin	150 - 2 000	150

Notes:

Limit of detection (LOD) means the lowest level that can be detected accurately by the technique.

Limit of quantitation (LOQ) means the lowest level that can be quantified accurately by the technique.

A result above zero but lower than the limit of detection/quantitation, is reported as <LOD/<LOQ.

µg/kg = ppb (parts per billion)

Technique used for season 2009/2010 - 2017/2018

During 2010 SAGL implemented a multi-mycotoxin screening method using UPLC-MS/MS. The following limit of detection applies for each toxin:

Mycotoxin	LOQ for maize µg/kg	LOD for maize µg/kg
Aflatoxin G ₁	5	2.5
Aflatoxin B ₁	5	2.5
Aflatoxin G ₂	5	2.5
Aflatoxin B ₂	5	2.5
Fumonisins B ₁	20	10
Fumonisins B ₂	20	10
Fumonisins B ₃	20	10
Deoxynivalenol	100	50
Zearalenone	20	10
Ochratoxin A	5	2.5
T - 2 Toxin	20	10