

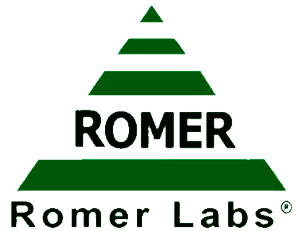
Mycotoxin Occurrence in 2020 US Corn & Corn By-products Dec 2020 Update

Dec 3, 2020

Mycotoxins & Analysis



LC-MS/MS



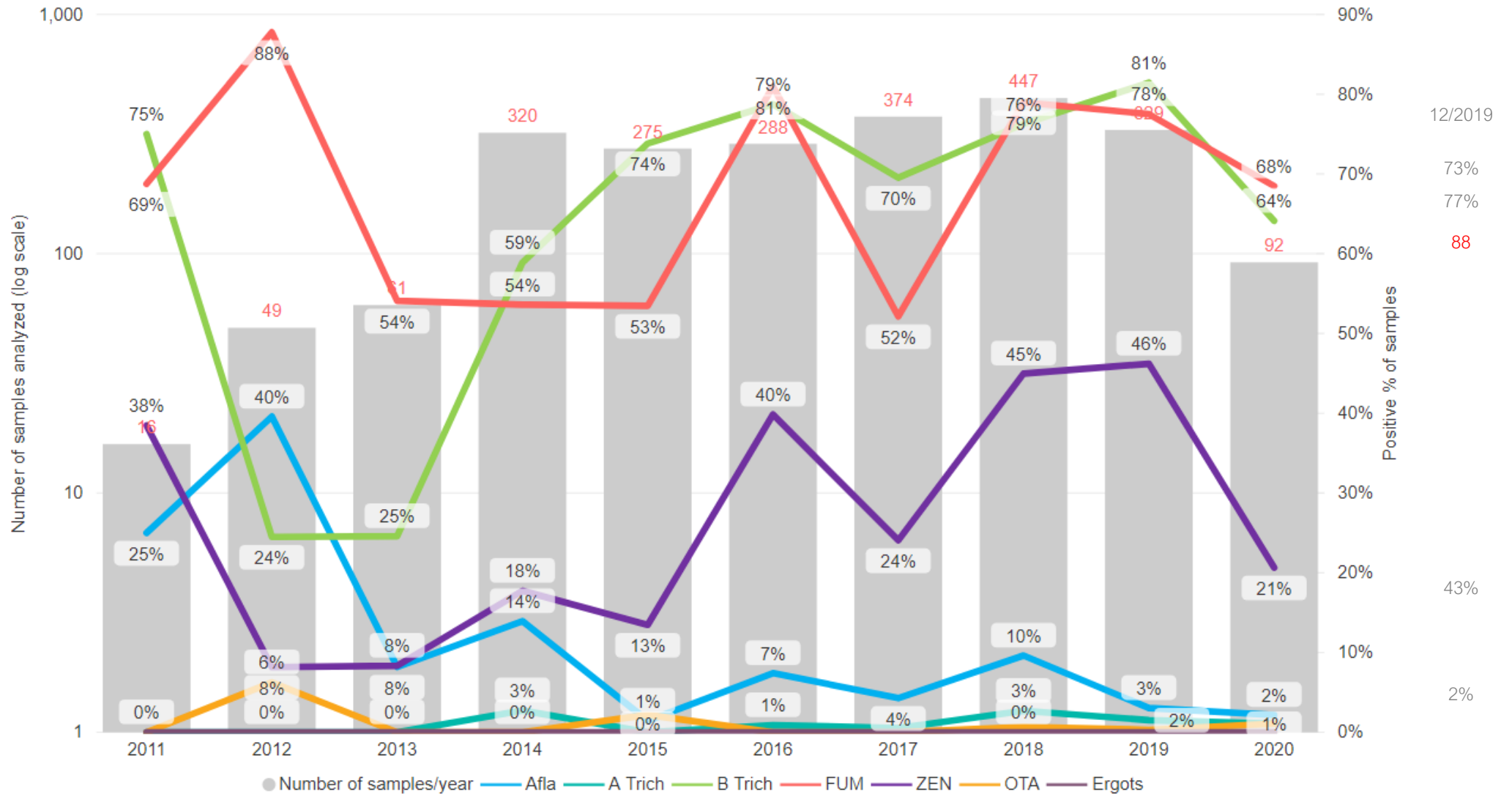
2 Labs

Mycotoxin Group	Mycotoxins	Limit of Detection (ppb)
Aflatoxins (AFLA)	Aflatoxin B1	1.3
	Aflatoxin B2	1.2
	Aflatoxin G1	1.1
	Aflatoxin G2	1.6
A-Trichothecenes (A-Trich)	T-2	100.0
	HT-2	100.0
	Neosolaniol	100.0
	Diacetoxyscirpenol (DAS)	100.0
B-Trichothecenes (B-Trich)	Deoxynivalenol (DON/Vomitoxin)	100.0
	Acetyl-deoxynivalenol (A-DON)	100.0
	Nivalenol (NIV)	100.0
	Fusarenon X (FUS-X)	100.0
Fumonisin (FUM)	Fumonisin B1	100.0
	Fumonisin B2	100.0
	Fumonisin B3	100.0
Zearalenone (ZEN)	Zearalenone (ZEN)	51.7
Ochratoxin A (OTA)	Ochratoxin A (OTA)	1.1

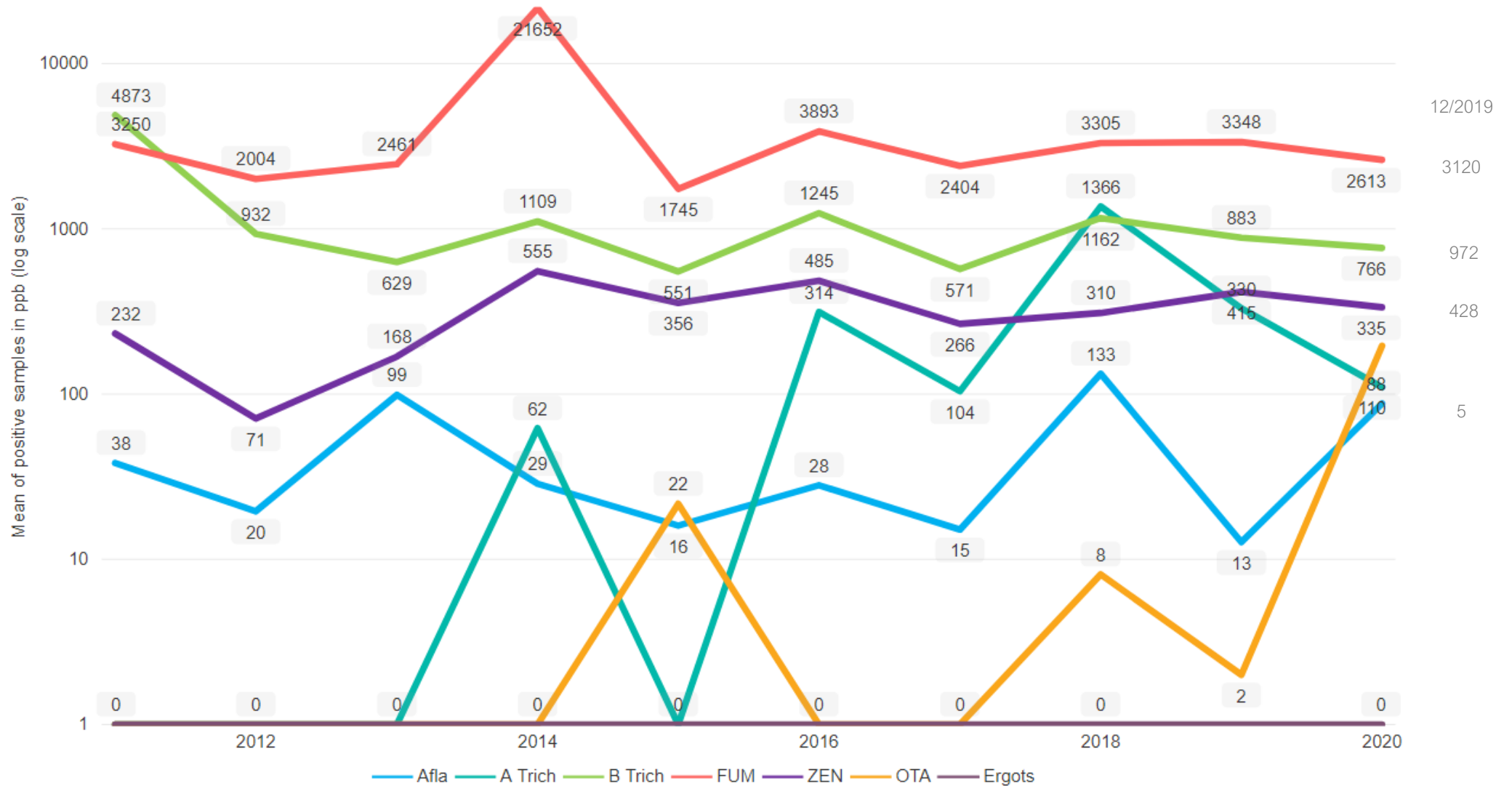


2020 US Corn (as-fed basis)

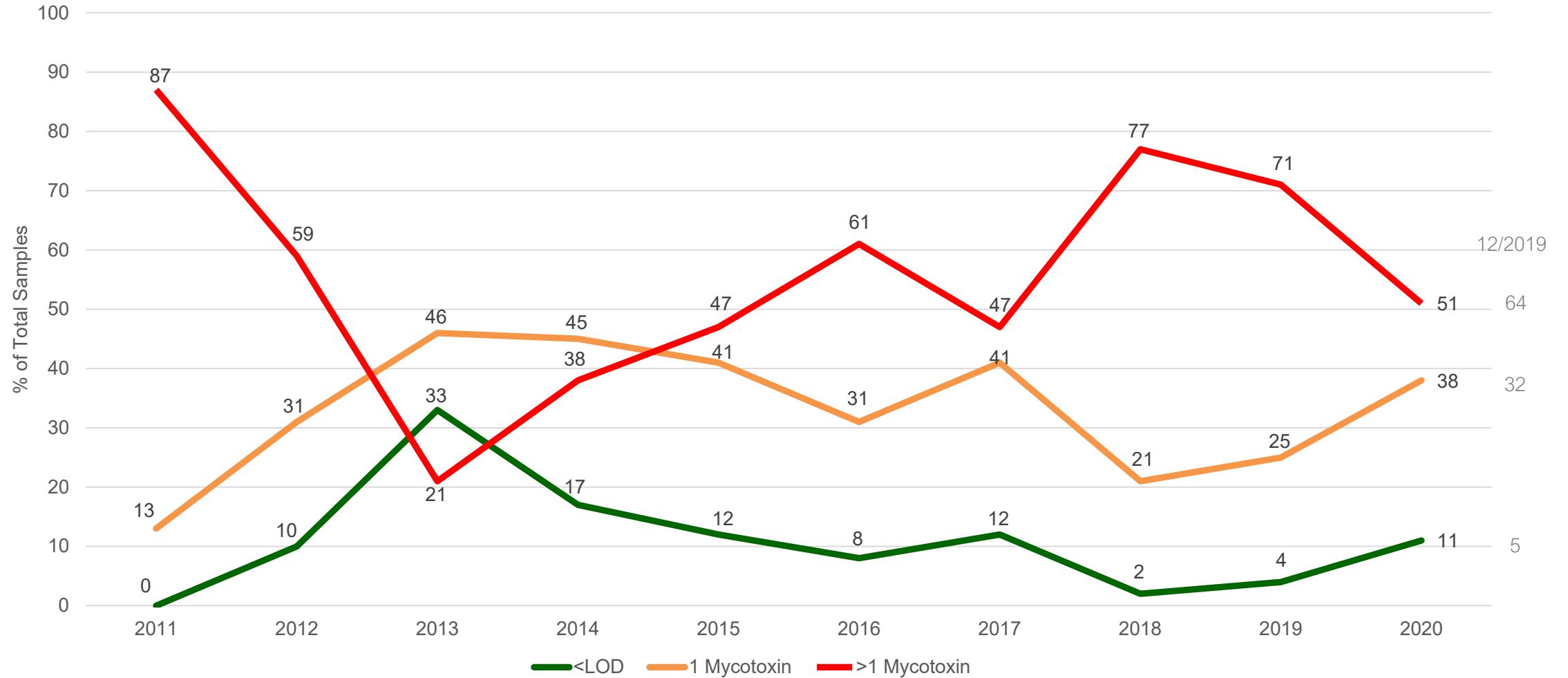
MTX Occurrence Trend in 2020 US Corn



Mean of Positives Trend in 2020 US Corn



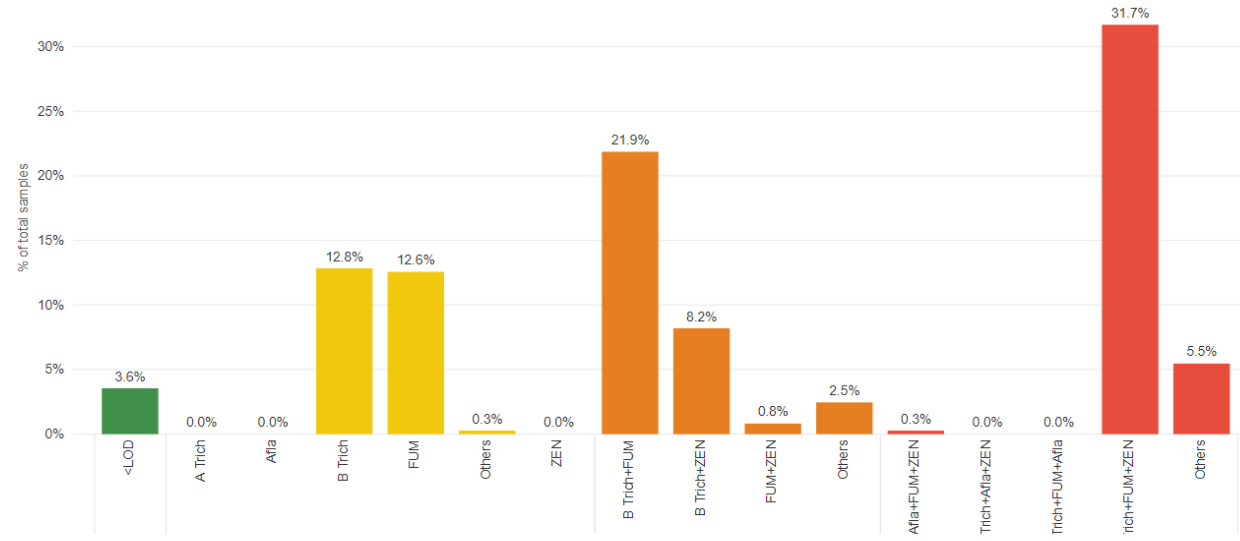
Mycotoxin Co-occurrence Trend in 2020 US Corn



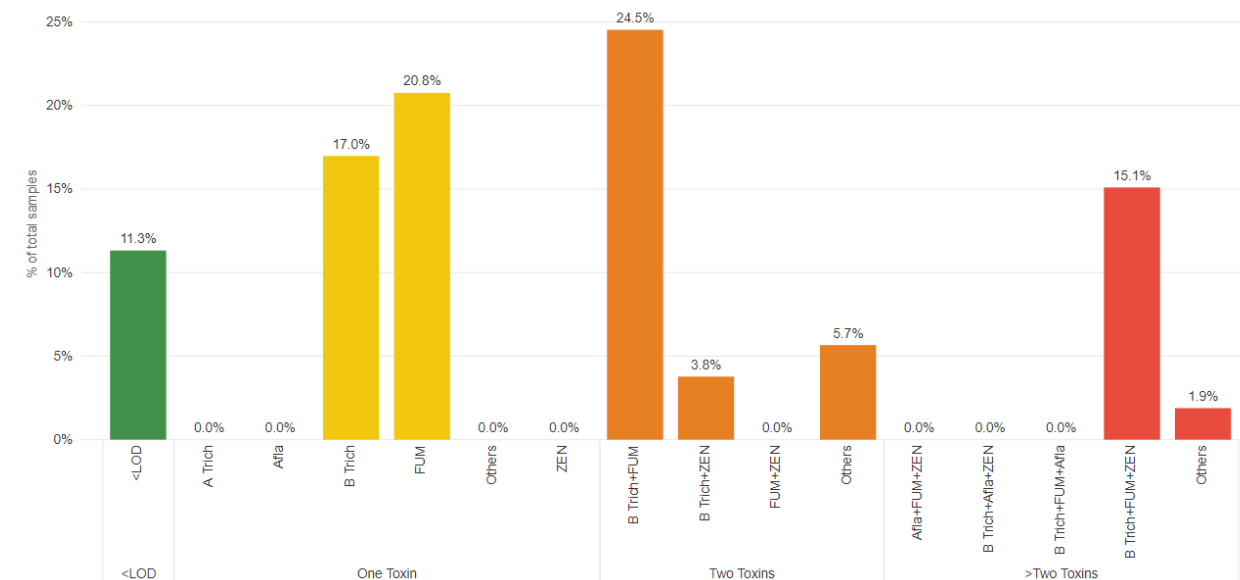
Mycotoxin Co-occurrence 2019 vs. 2020 in US Corn



2019



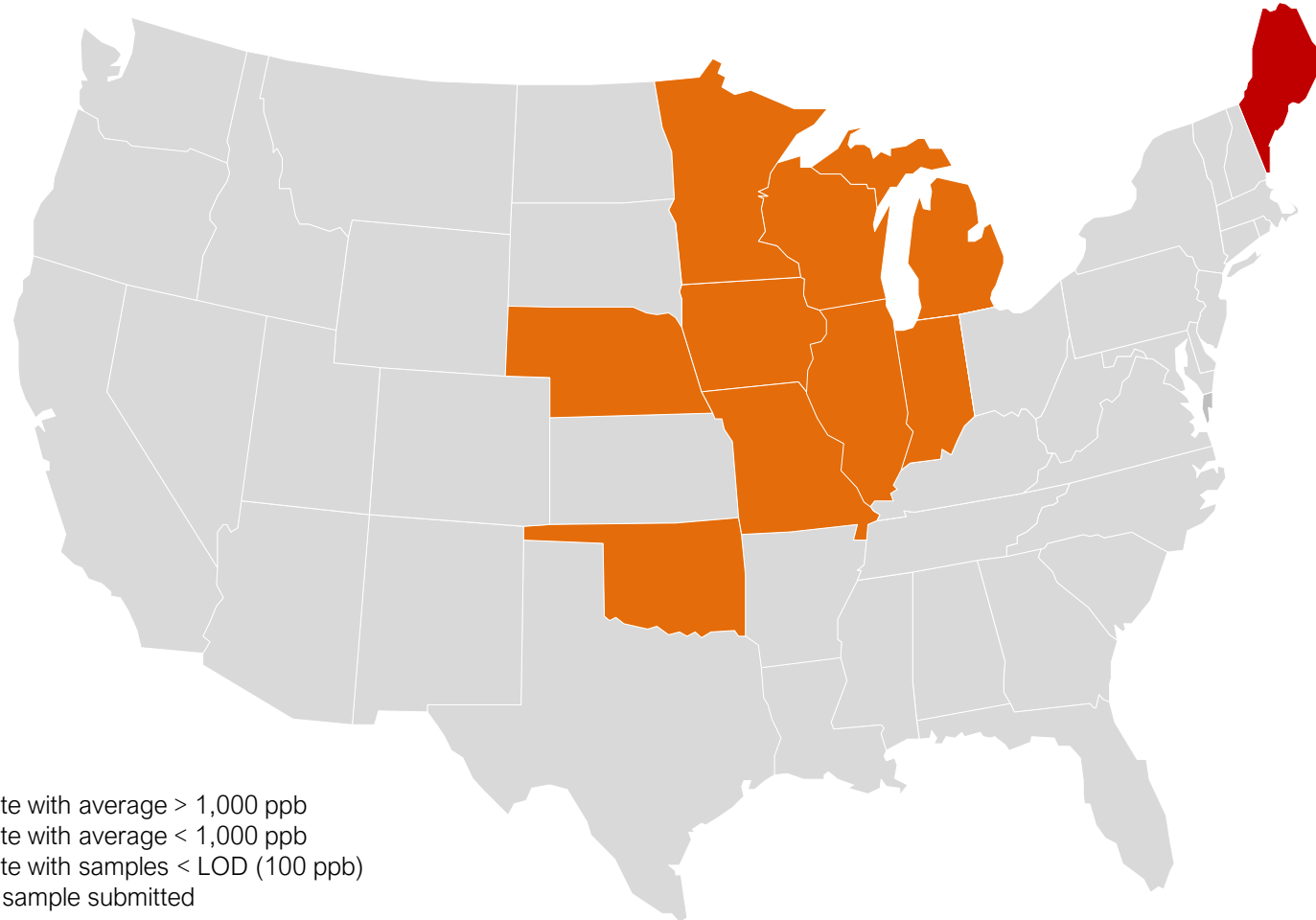
2020



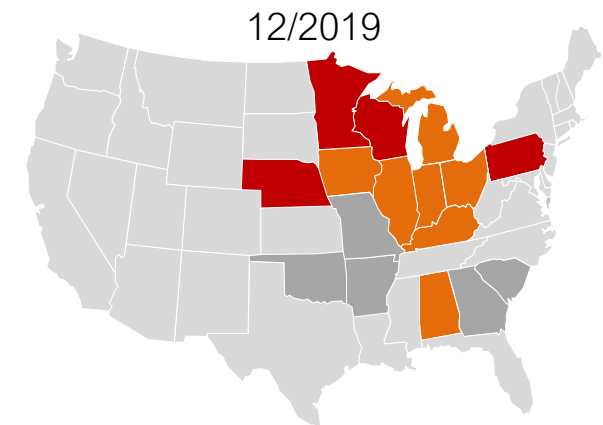
B-Trich Risk by State - 2020 US Corn



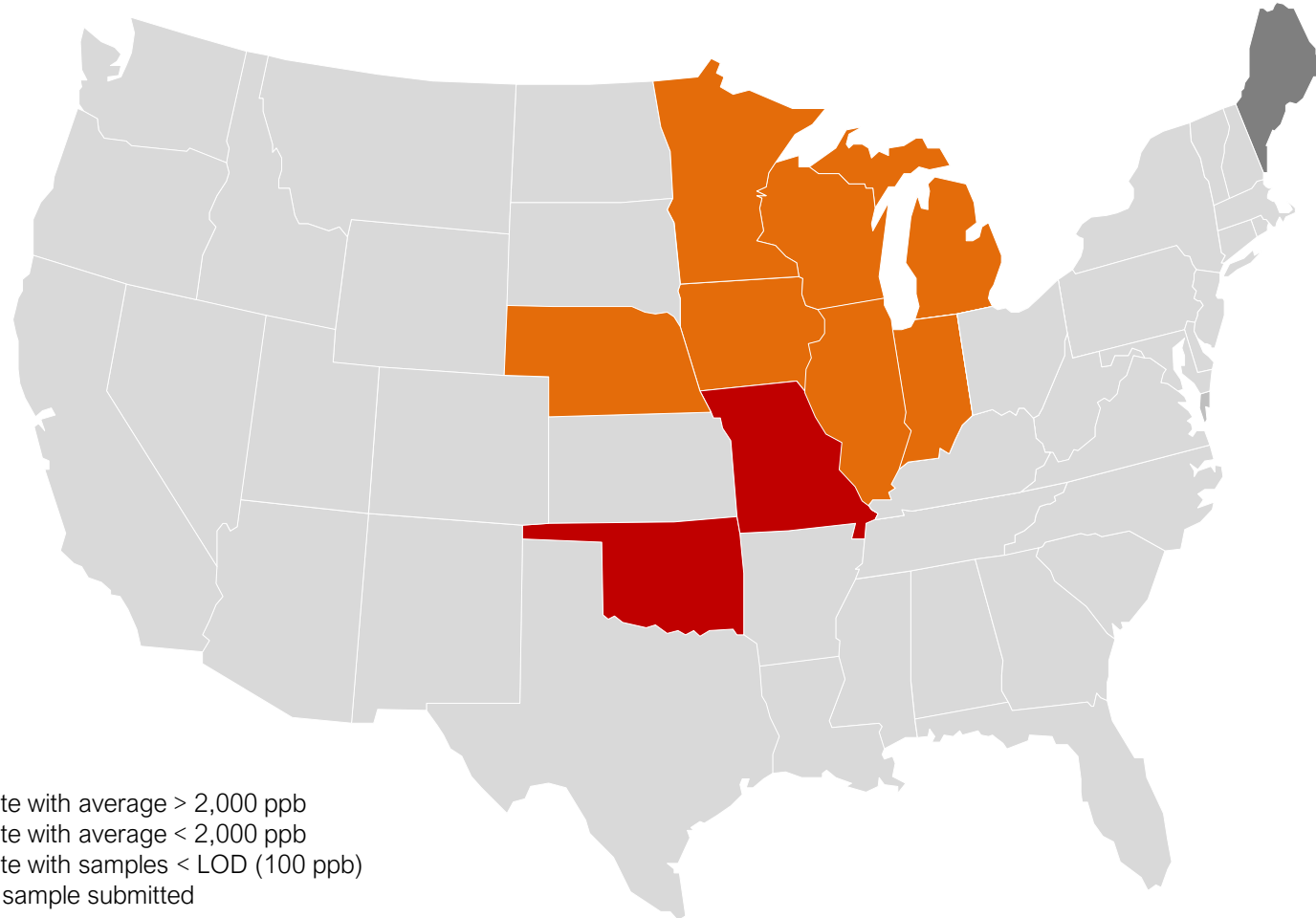
State	Number of Samples	% Positive Samples	Avg of Positive Samples
ME	1	100%	2864
MN	3	100%	767
MO	13	46%	761
MI	6	33%	724
WI	9	100%	634
NE	14	57%	590
OK	6	50%	572
IA	6	17%	536
IN	2	50%	235
IL	1	100%	156



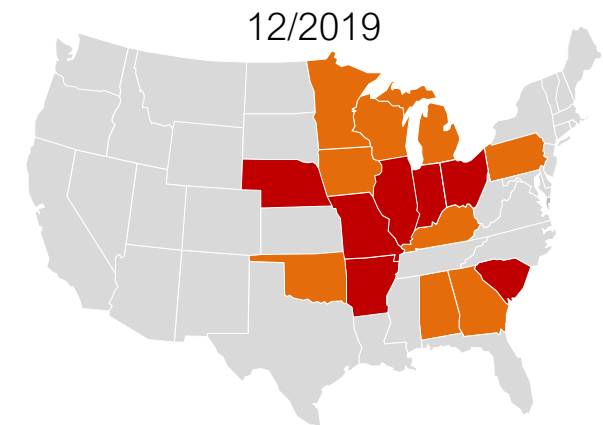
- State with average > 1,000 ppb
- State with average < 1,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted



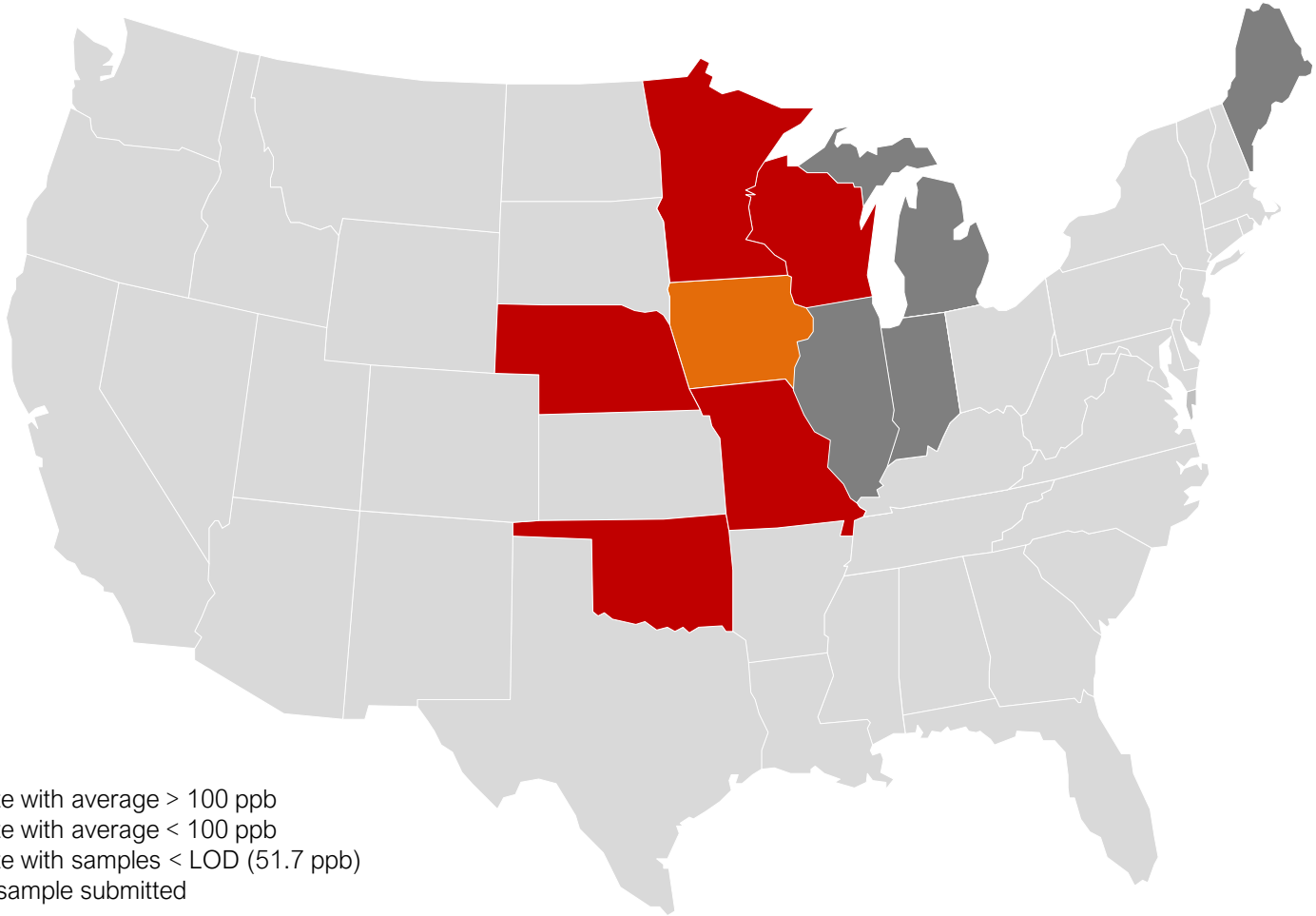
FUM Risk by State - 2020 US Corn



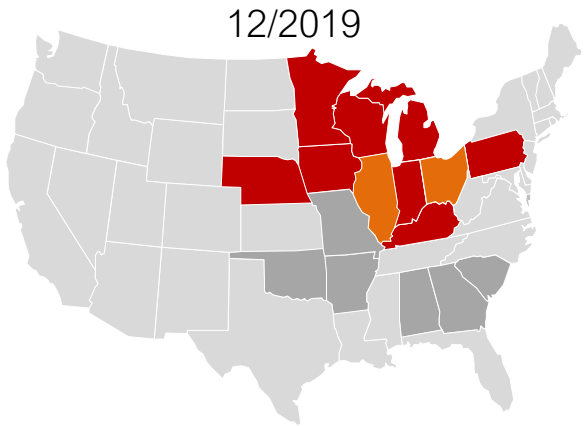
State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	13	92%	9858
OK	6	83%	2900
MN	3	67%	1750
NE	14	79%	1200
IN	2	100%	700
IL	1	100%	500
WI	9	56%	360
MI	6	33%	350
IA	6	33%	250
ME	1	0%	0



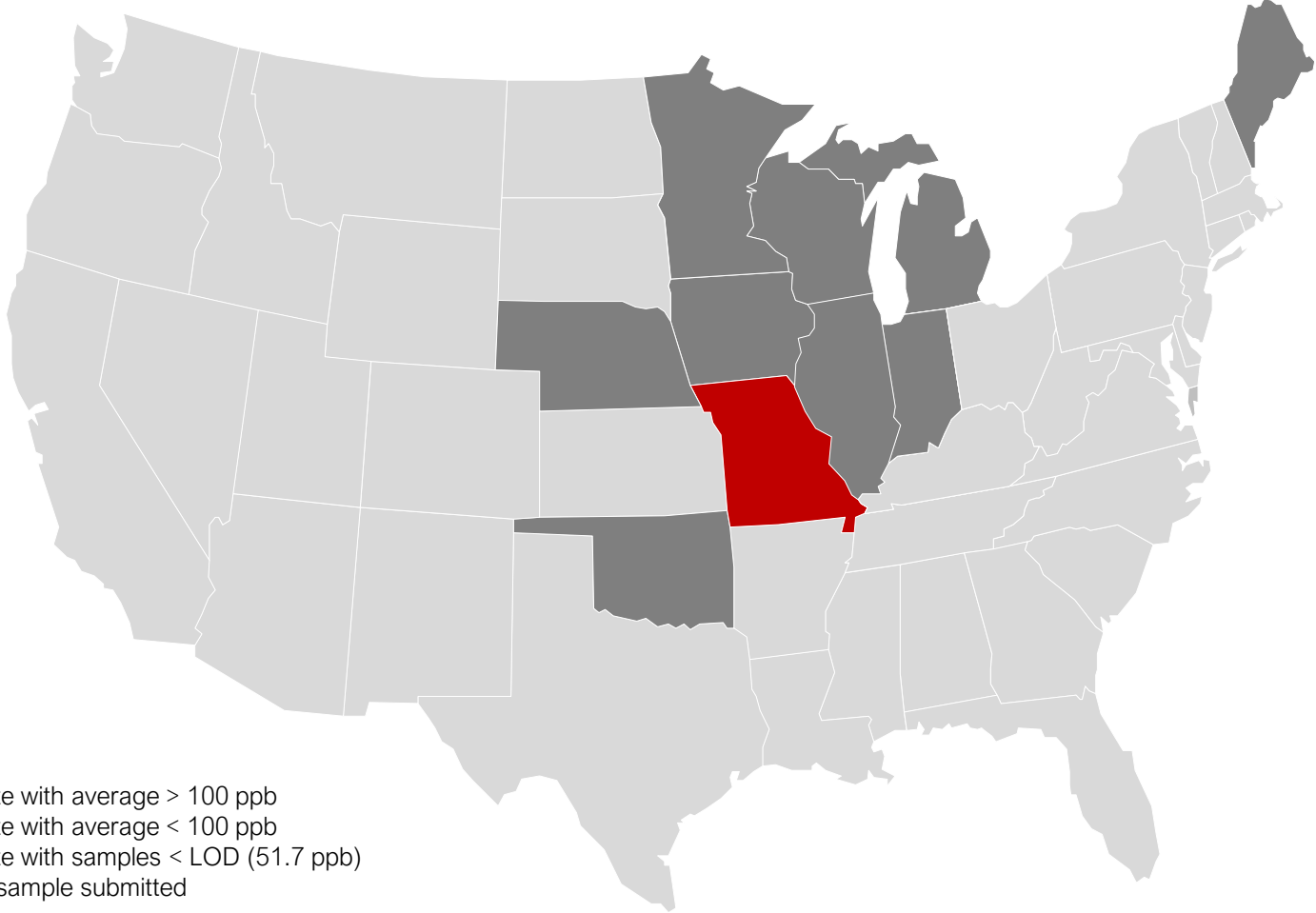
ZEN Risk by State - 2020 US Corn



State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	13	23%	670
NE	14	21%	257
MN	3	67%	255
WI	9	22%	235
OK	6	17%	118
IA	6	17%	55
IL	1	0%	0
IN	2	0%	0
ME	1	0%	0
MI	6	0%	0



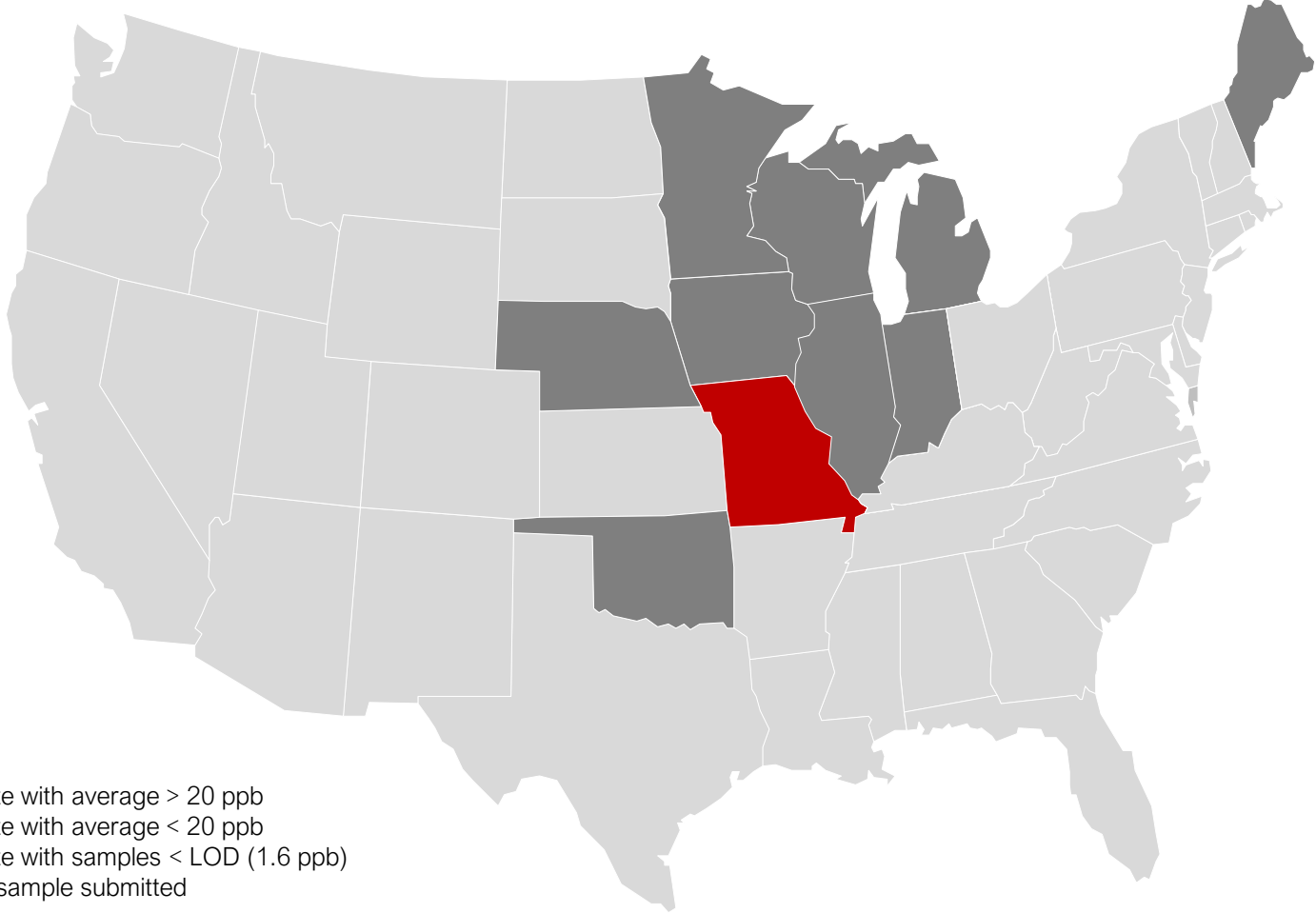
A-Trich Risk by State - 2020 US Corn



- State with average > 100 ppb
- State with average < 100 ppb
- State with samples < LOD (51.7 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	13	8%	110
IA	6	0%	0
IL	1	0%	0
IN	2	0%	0
ME	1	0%	0
MI	6	0%	0
MN	3	0%	0
NE	14	0%	0
OK	6	0%	0
WI	9	0%	0

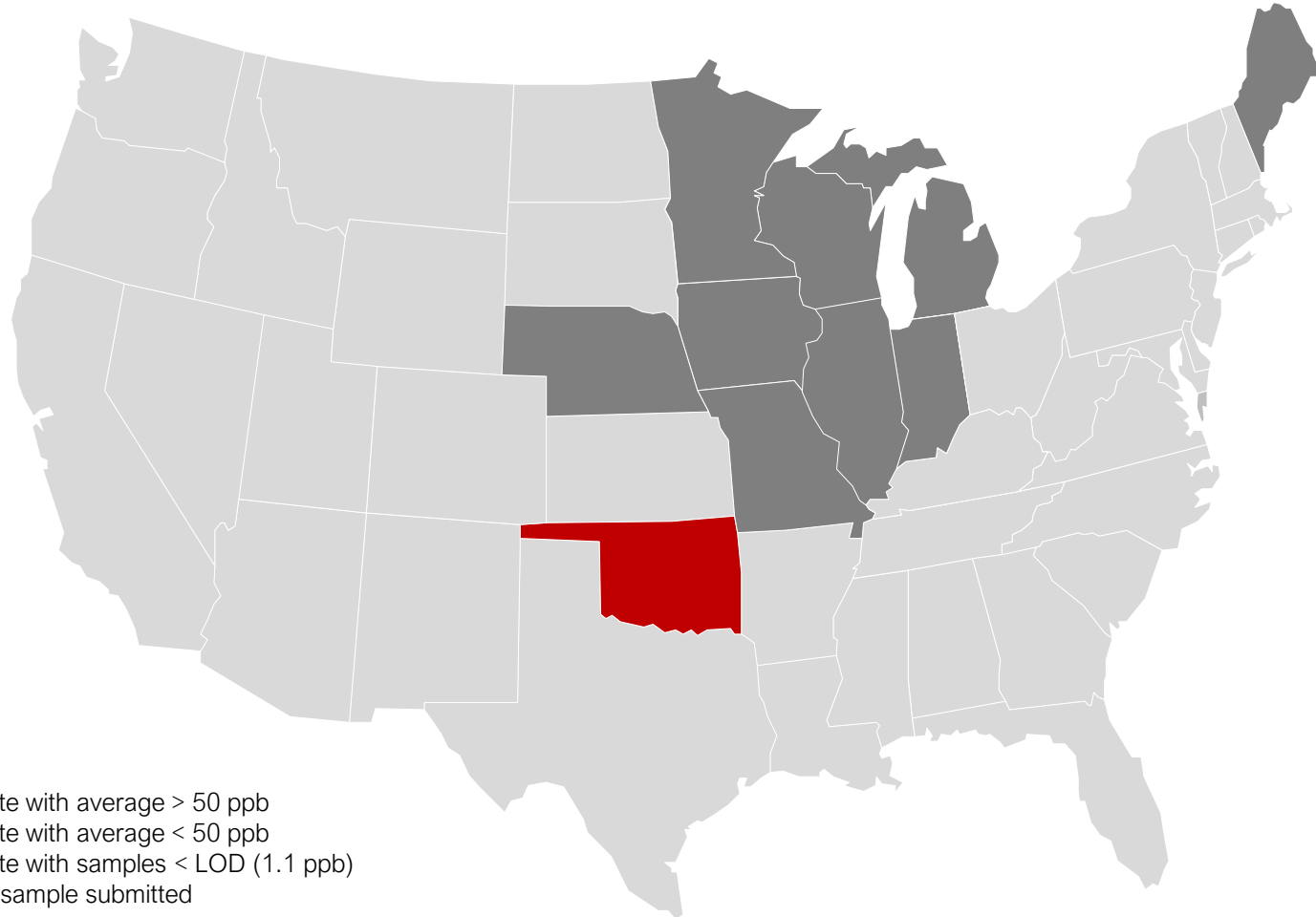
Afla Risk by State - 2020 US Corn



- State with average > 20 ppb
- State with average < 20 ppb
- State with samples < LOD (1.6 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	13	15%	87
IA	6	0%	0
IL	1	0%	0
IN	2	0%	0
ME	1	0%	0
MI	6	0%	0
MN	3	0%	0
NE	14	0%	0
OK	6	0%	0
WI	9	0%	0

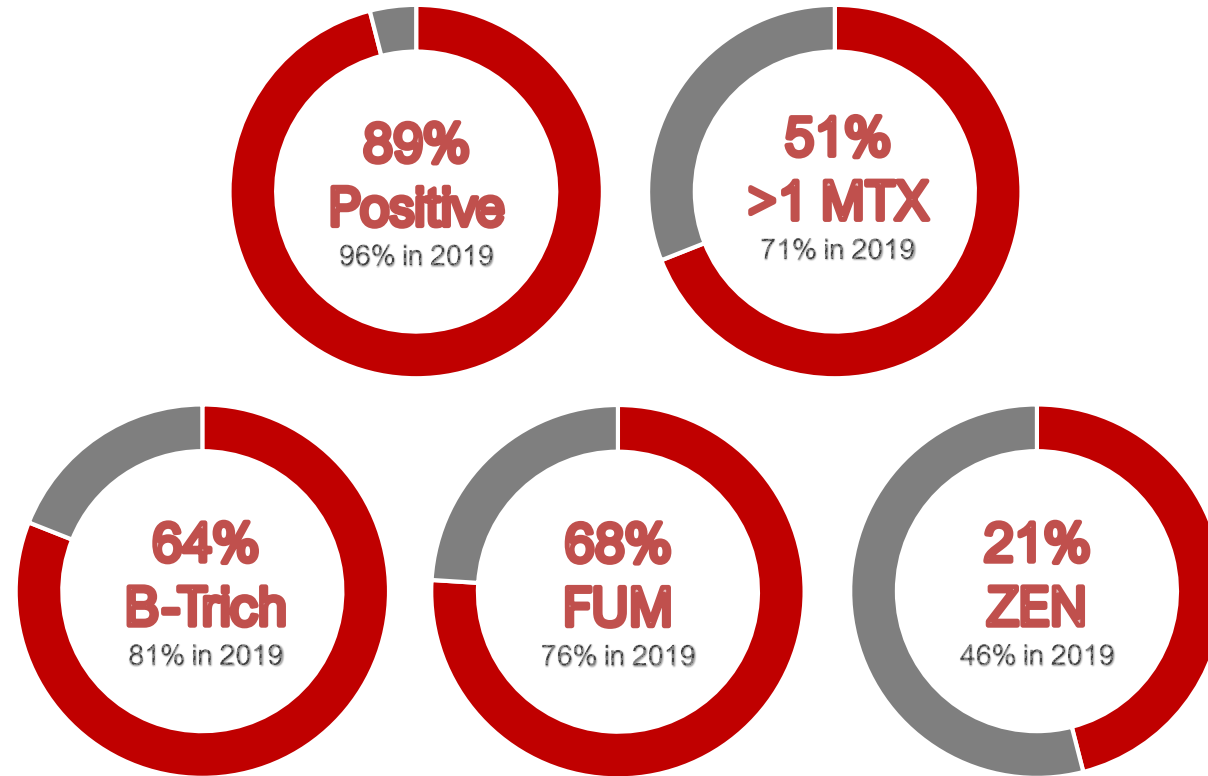
OTA Risk by State - 2020 US Corn



- State with average > 50 ppb
- State with average < 50 ppb
- State with samples < LOD (1.1 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
OK	6	17%	196
IA	6	0%	0
IL	1	0%	0
IN	2	0%	0
ME	1	0%	0
MI	6	0%	0
MN	3	0%	0
MO	13	0%	0
NE	14	0%	0
WI	9	0%	0

Mycotoxin Survey Summary - 2020 US Corn



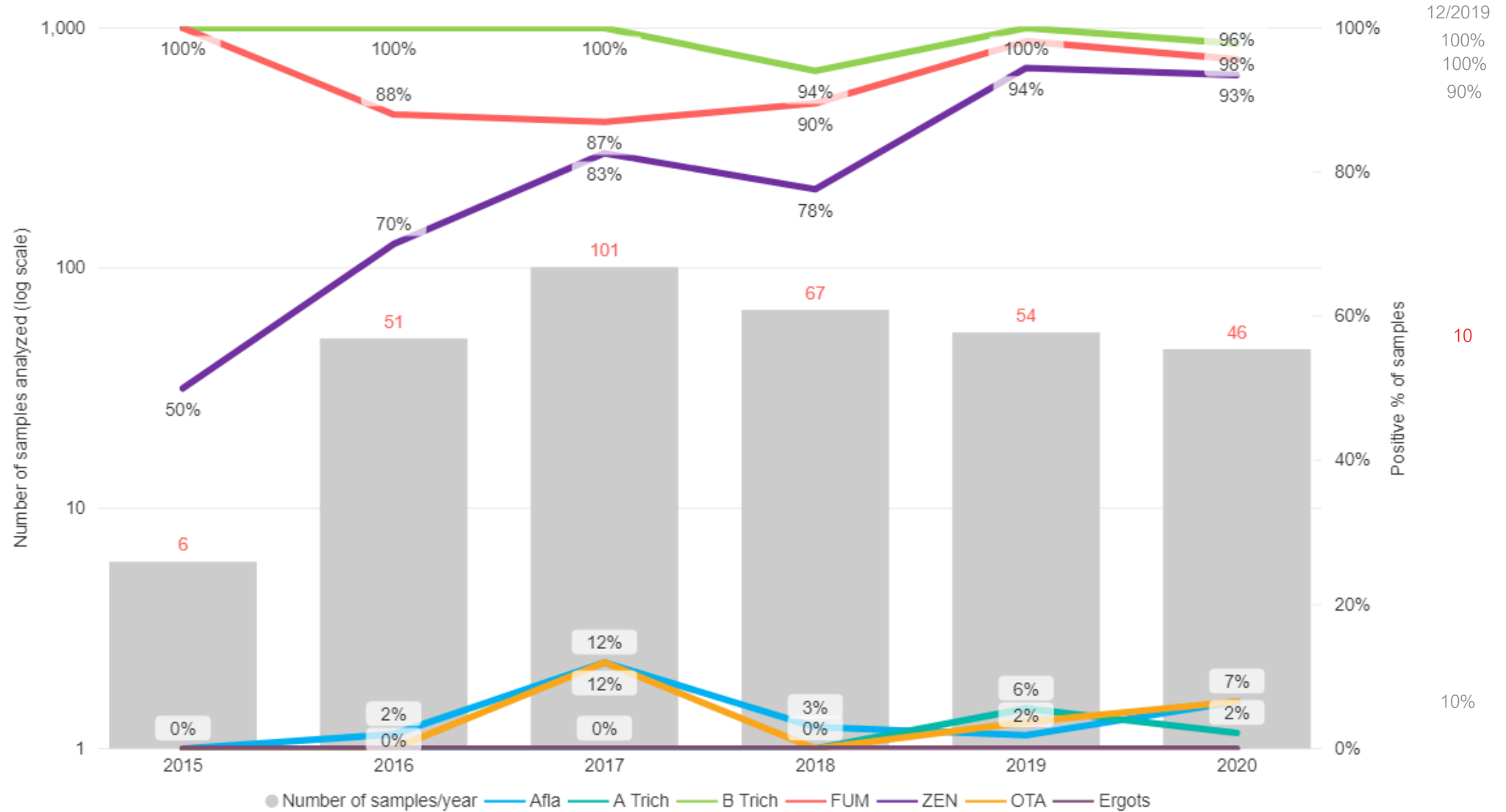
Forecasted risk for livestock production



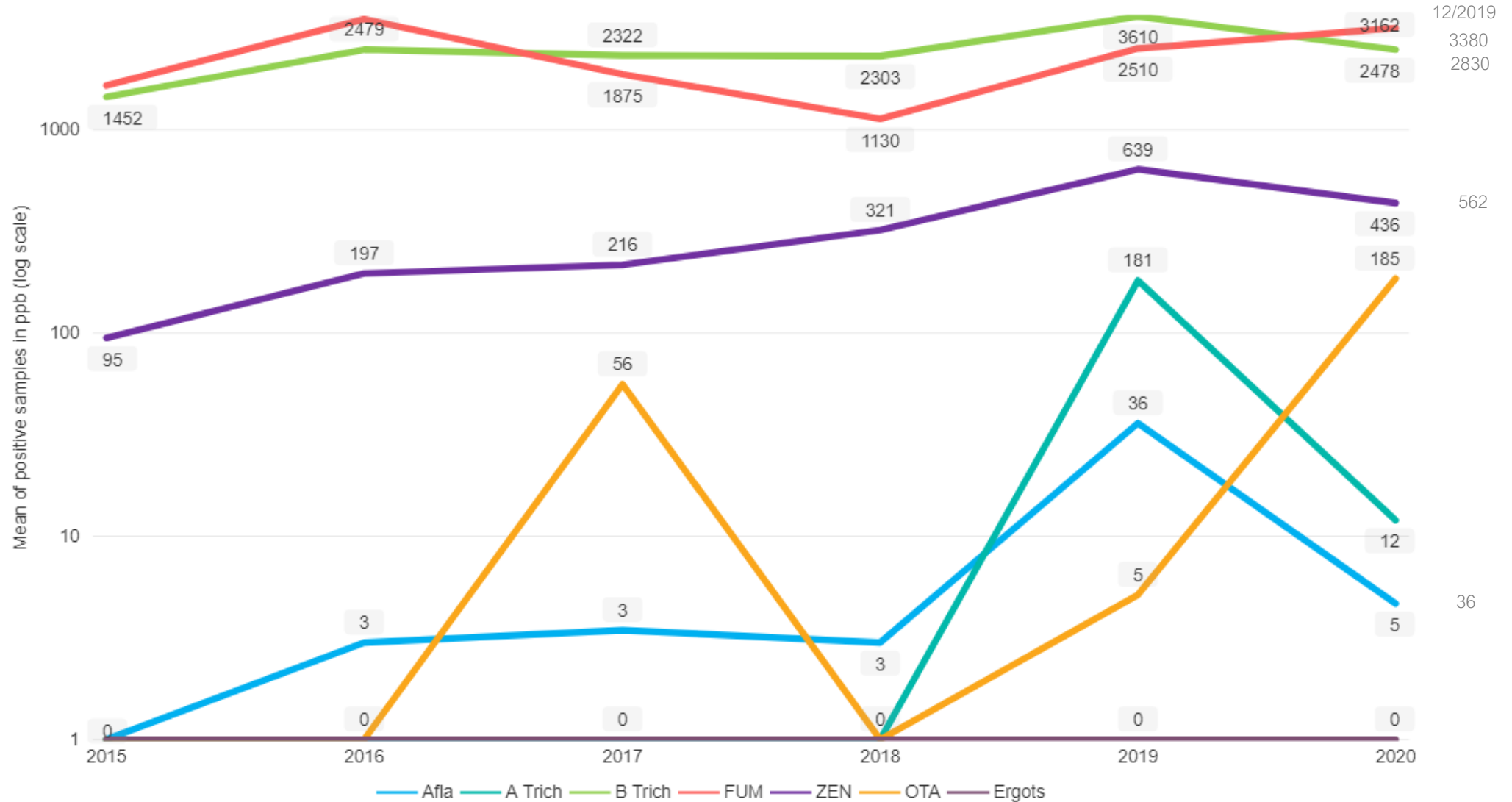


2020 US Corn By-products (as-fed basis)

Occurrence Trend in USA



Mean of Positives Trend in USA

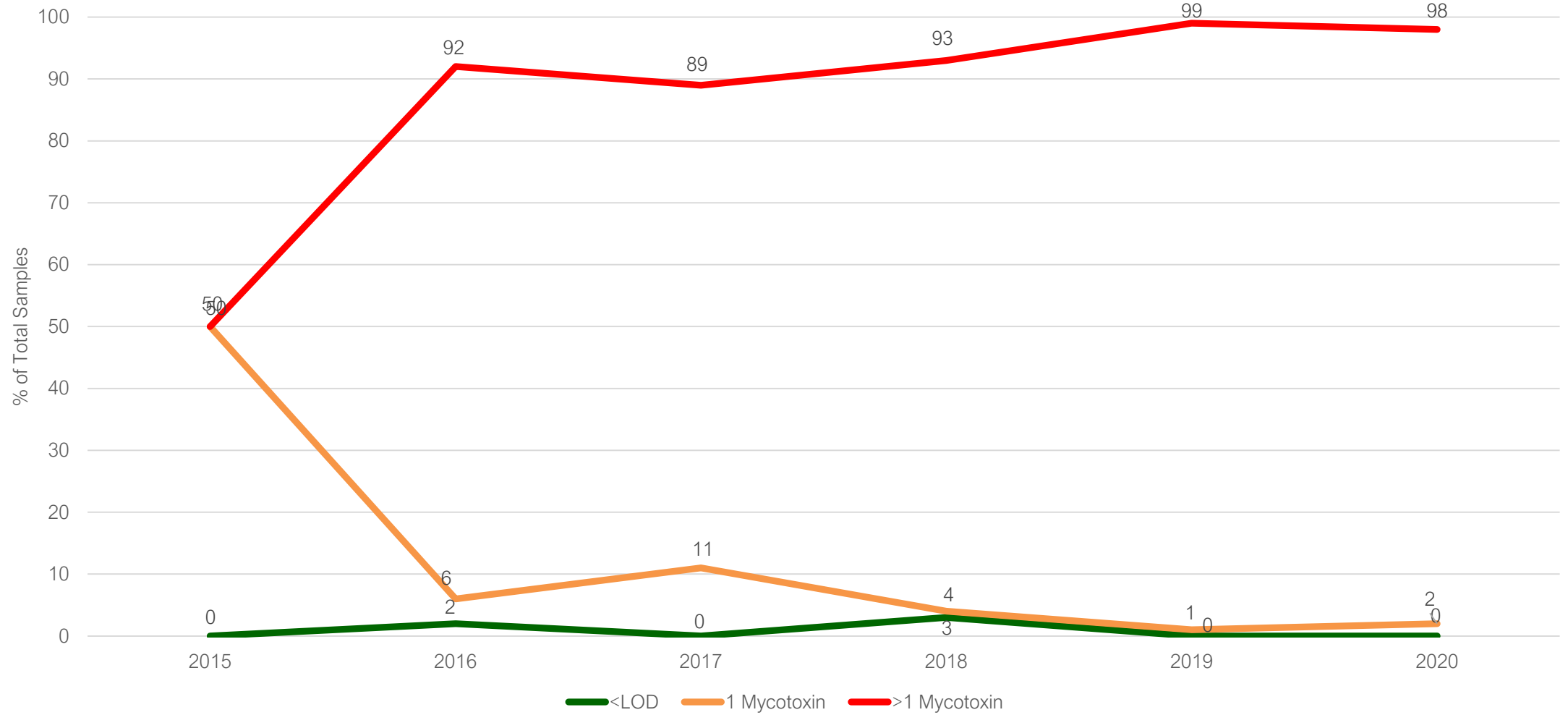


Co-occurrence Trend in USA



12/2019

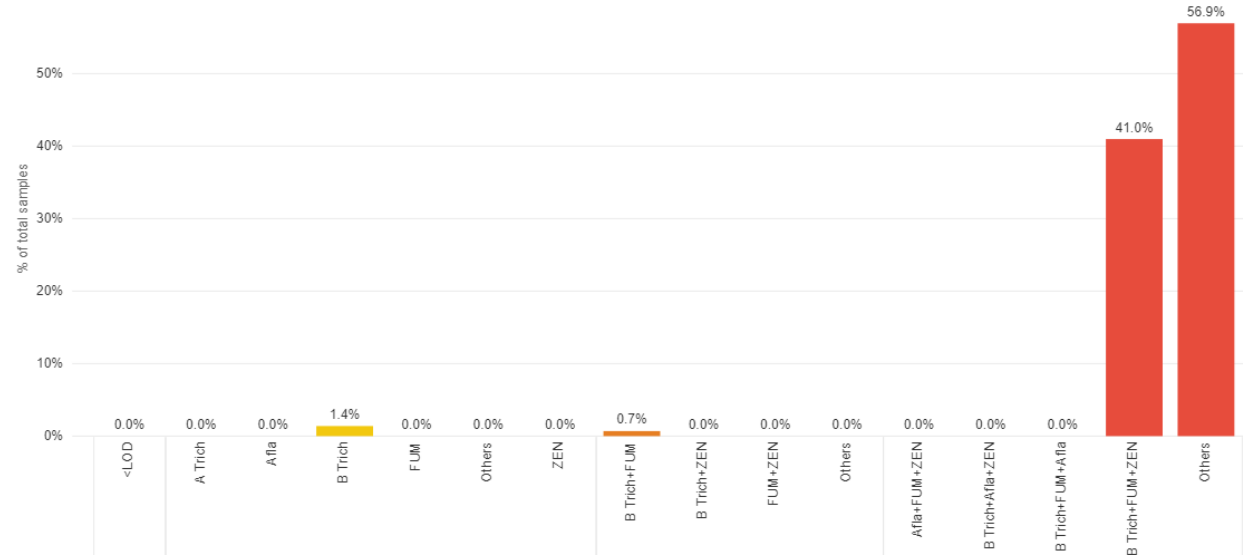
100



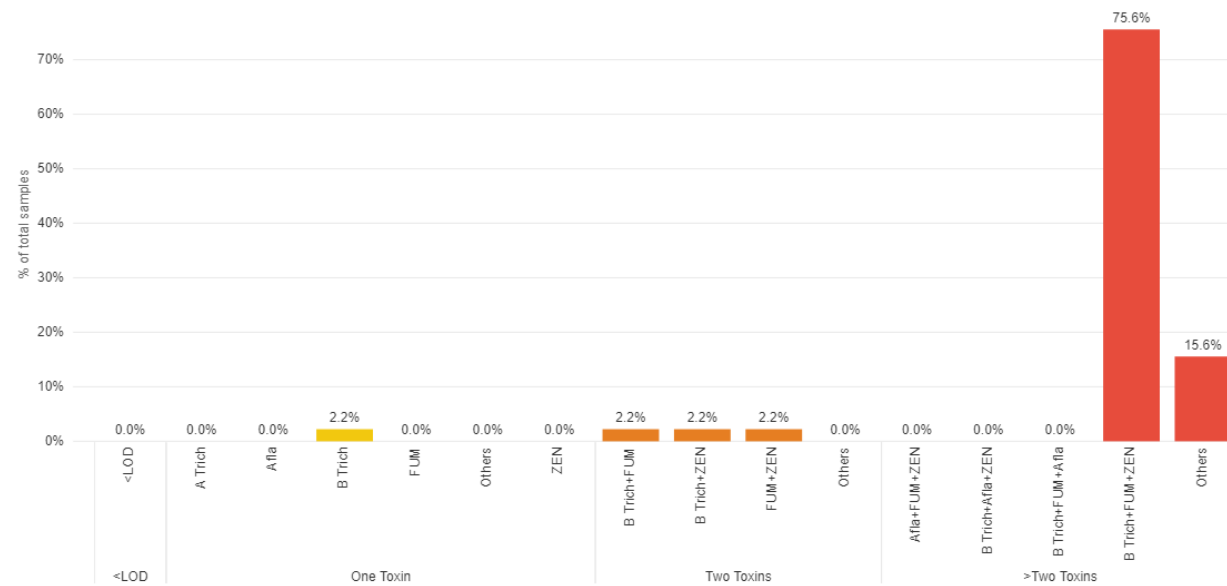
Co-occurrence 2019 vs. 2020 in USA



2019



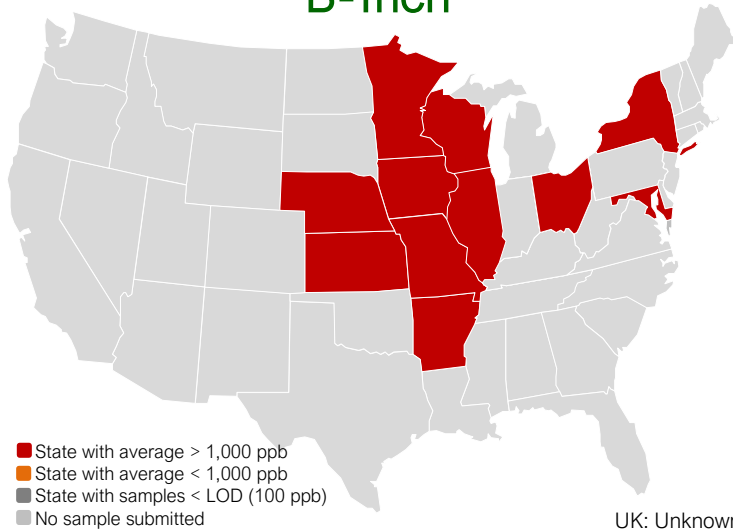
2020



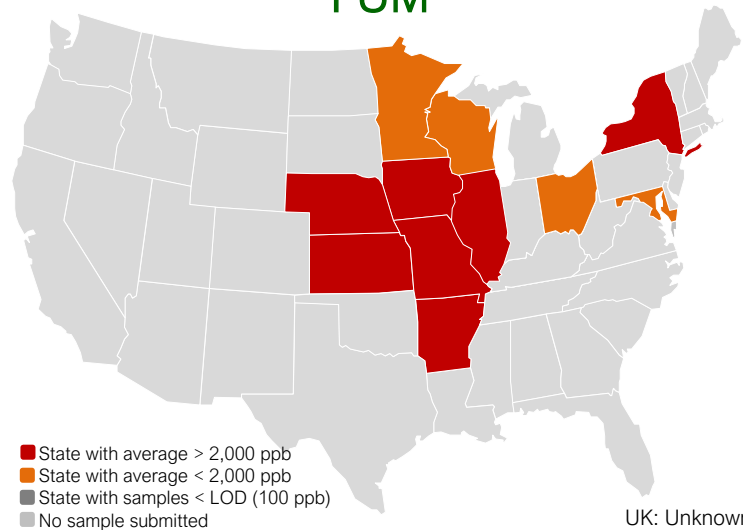
2020 Corn By-products Risk by State



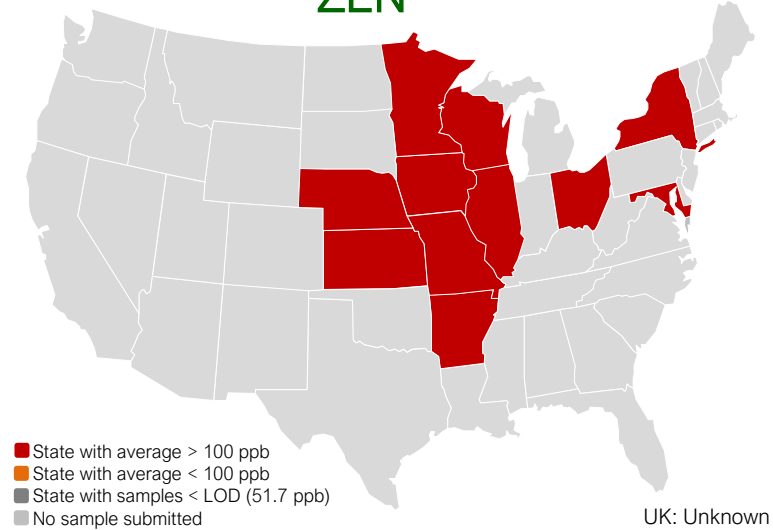
B-Trich



FUM



ZEN

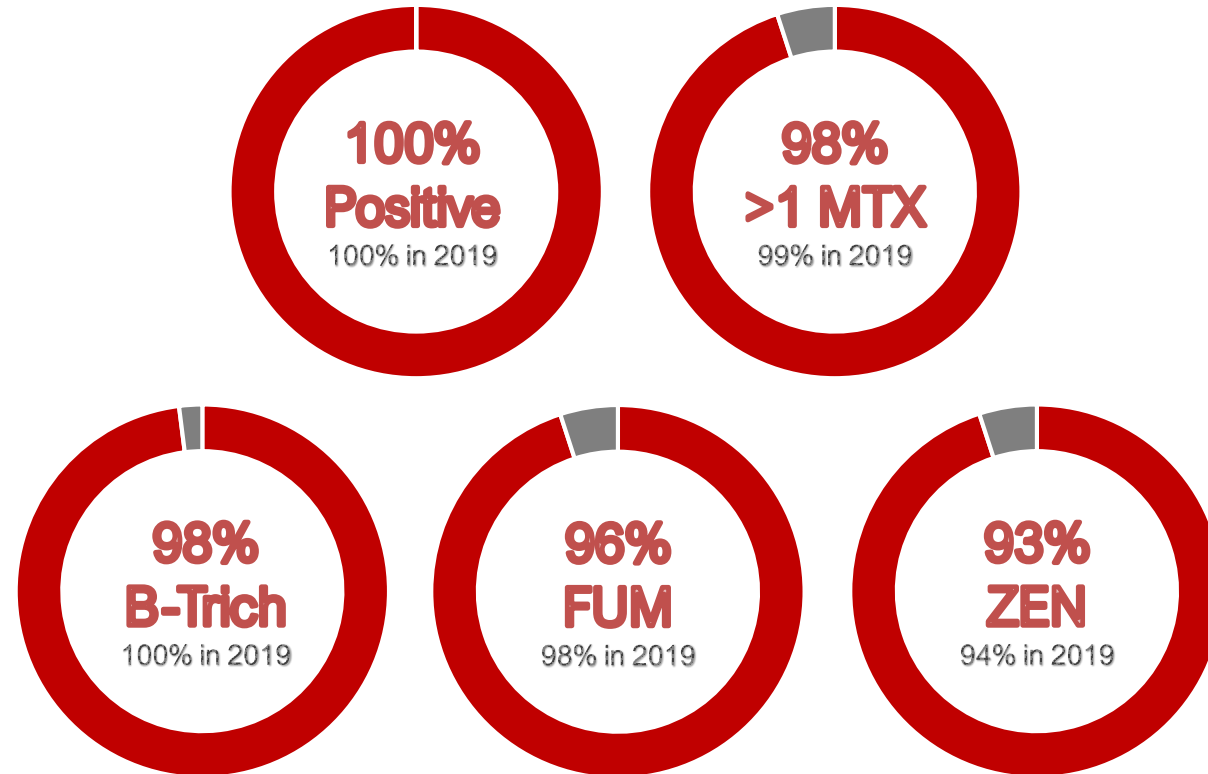


State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	1	100%	5492
KS	1	100%	5318
NE	4	100%	3640
NY	1	100%	3003
MD	1	100%	2717
MN	5	100%	2514
AR	1	100%	2472
WI	7	100%	2429
IA	19	95%	2159
IL	1	100%	1647
OH	1	100%	1273
UK	1	100%	174

State	Number of Samples	% Positive Samples	Avg of Positive Samples
AR	1	100%	19200
KS	1	100%	14200
NE	4	100%	5848
IL	1	100%	3800
IA	19	100%	2837
MO	1	100%	2800
NY	1	100%	2200
WI	7	100%	1429
MD	1	100%	900
OH	1	100%	800
MN	5	60%	400
UK	1	100%	200

State	Number of Samples	% Positive Samples	Avg of Positive Samples
MO	1	100%	1461
AR	1	100%	932
KS	1	100%	816
NE	4	100%	609
WI	7	100%	415
IA	19	95%	388
NY	1	100%	342
MN	5	80%	323
MD	1	100%	269
OH	1	100%	163
IL	1	100%	115
UK	1	0%	0

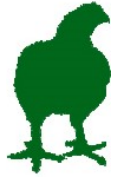
Mycotoxin Survey Summary - 2020 US Corn By-products



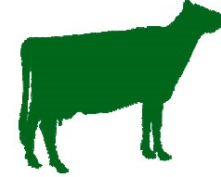
Forecasted risk for livestock production



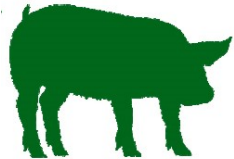
Questions?



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