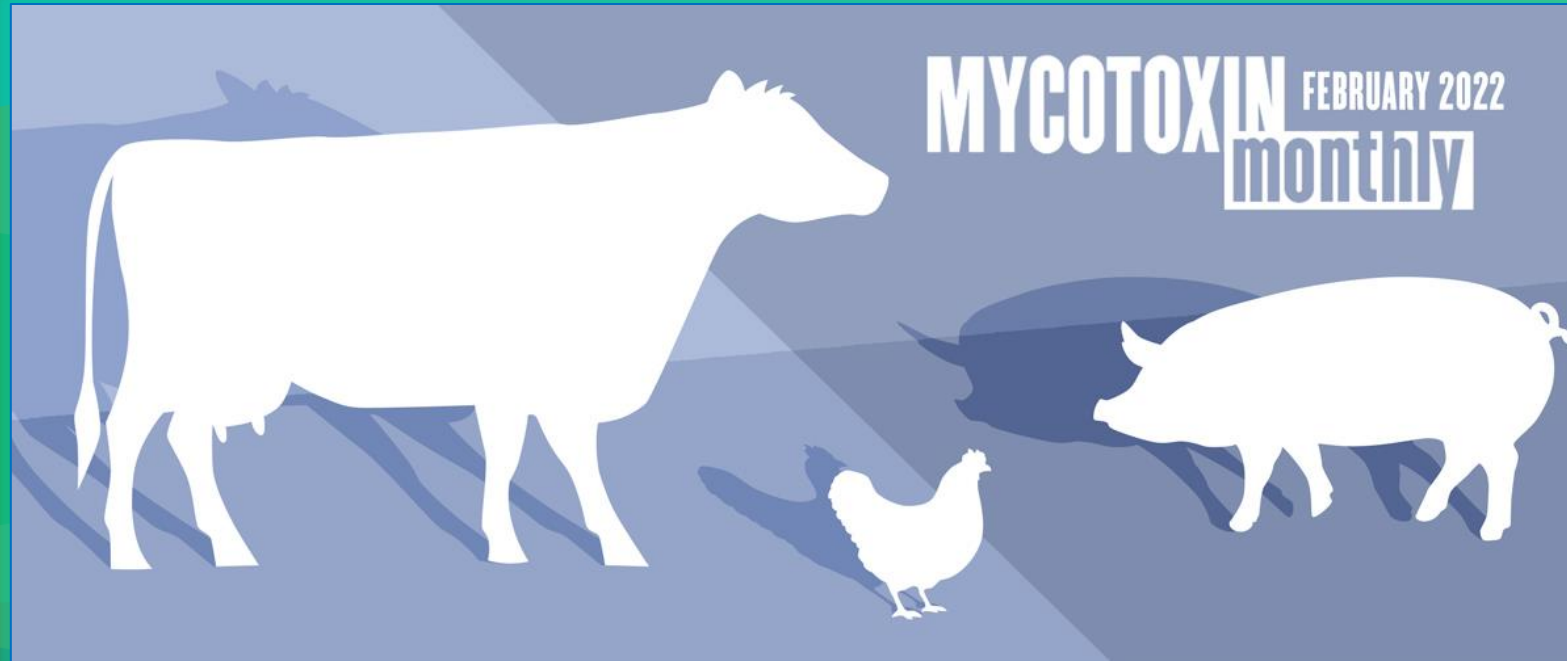


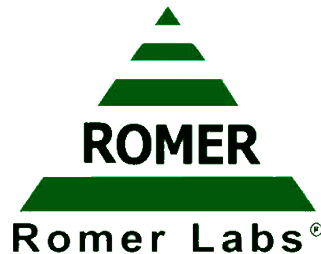
# Mycotoxin Occurrence in 2021 US Corn Ingredients



# Mycotoxins & Analysis



**LC-MS/MS**

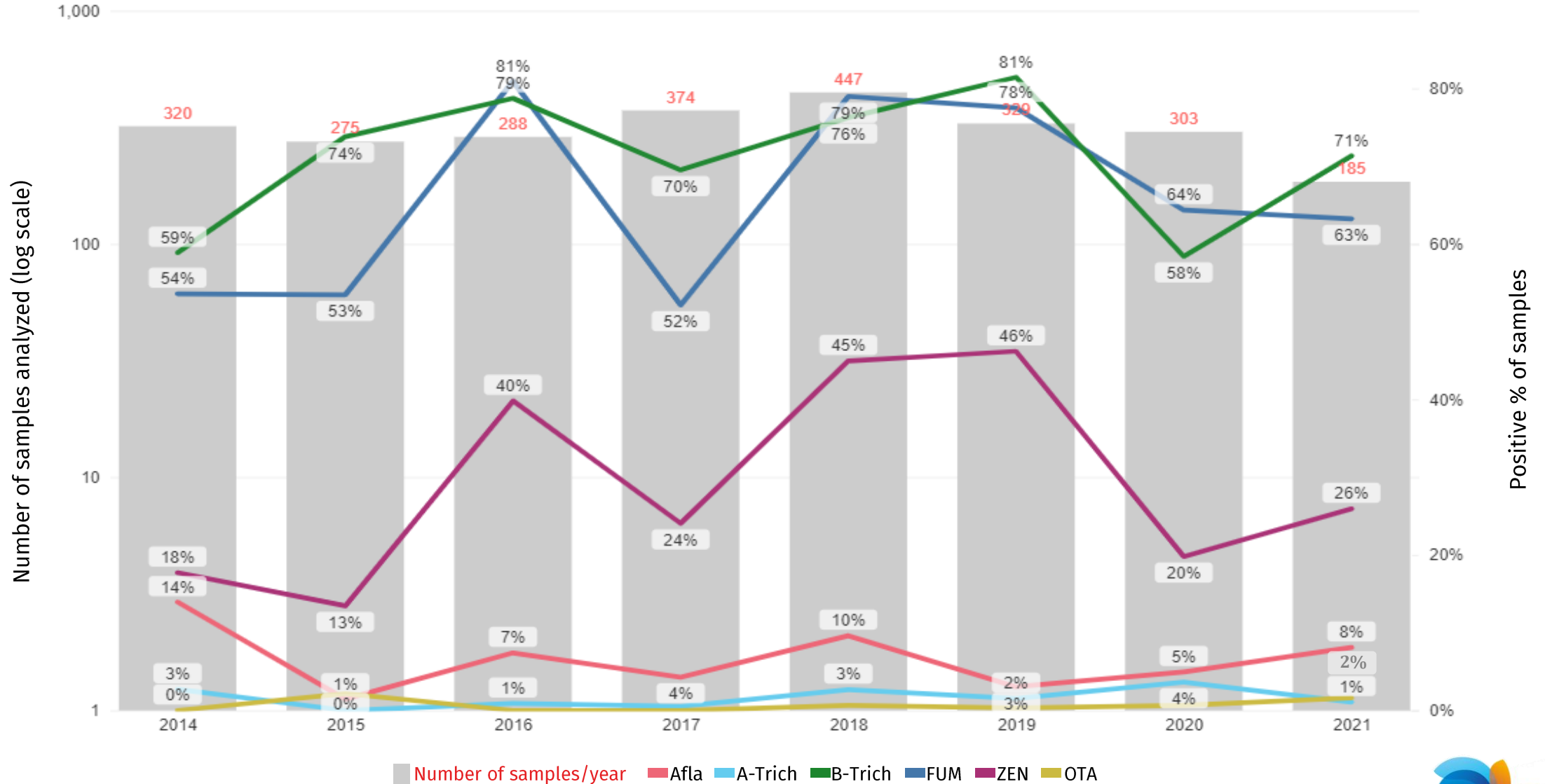


The survey results represent samples sent in for surveillance testing only and does not include any sample submitted following clinical signs.

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 Toxin	100.0
	HT-2 Toxin	100.0
	Neosolaniol	100.0
	Diacetoxyscirpenol (DAS)	100.0
B-Trichothecenes (B-Trich)	Deoxynivalenol (DON/Vomitoxin)	100.0
	Acetyldeoxynivalenol (AcDON)	100.0
	Nivalenol (NIV)	100.0
	Fusarenon X (FusX)	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

# 2021 US Corn (as-fed basis)

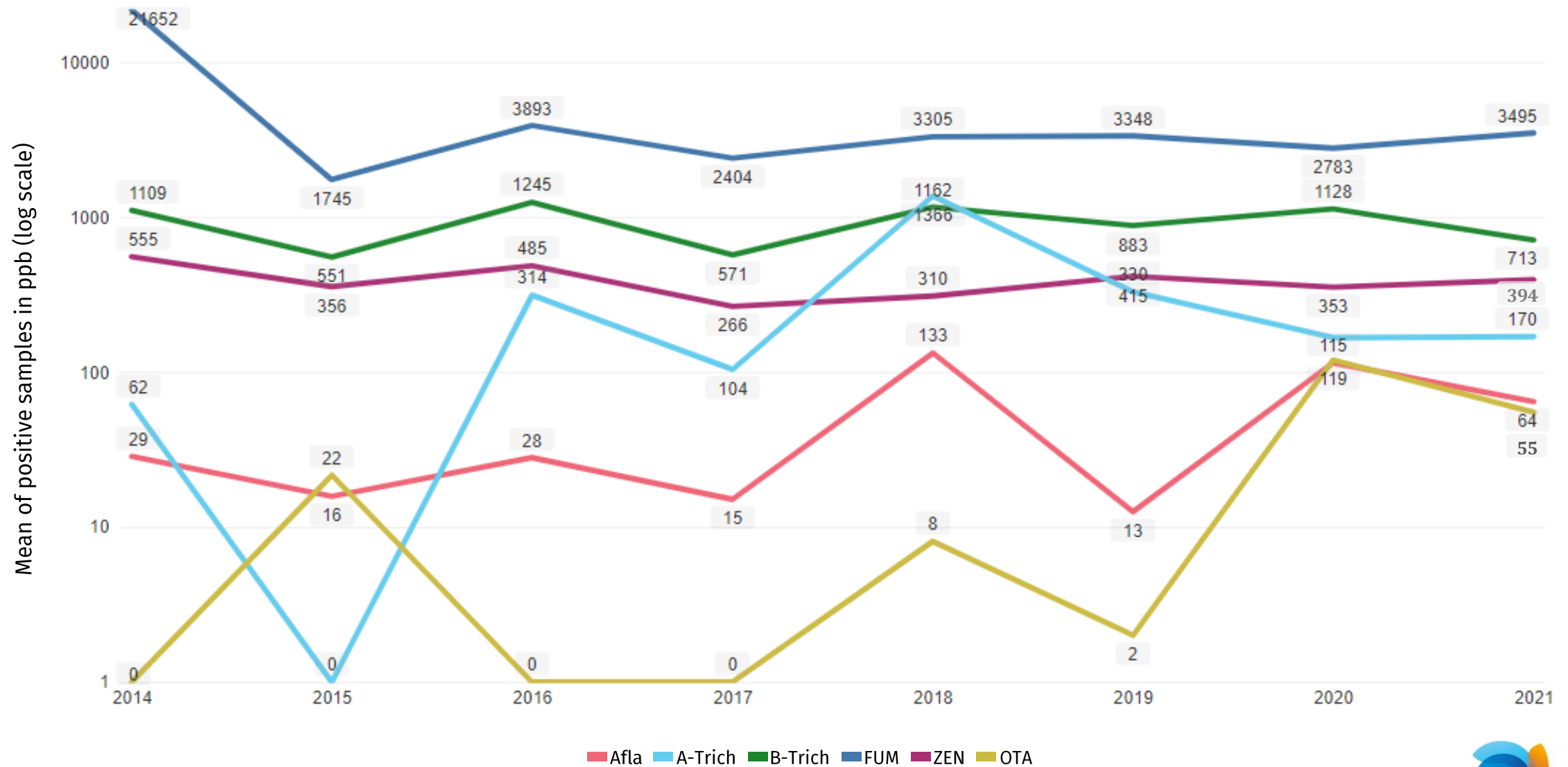
# Occurrence Trend in 2021 US Corn



Based on the samples analyzed.



# Mean of Positives Trend in 2021 US Corn

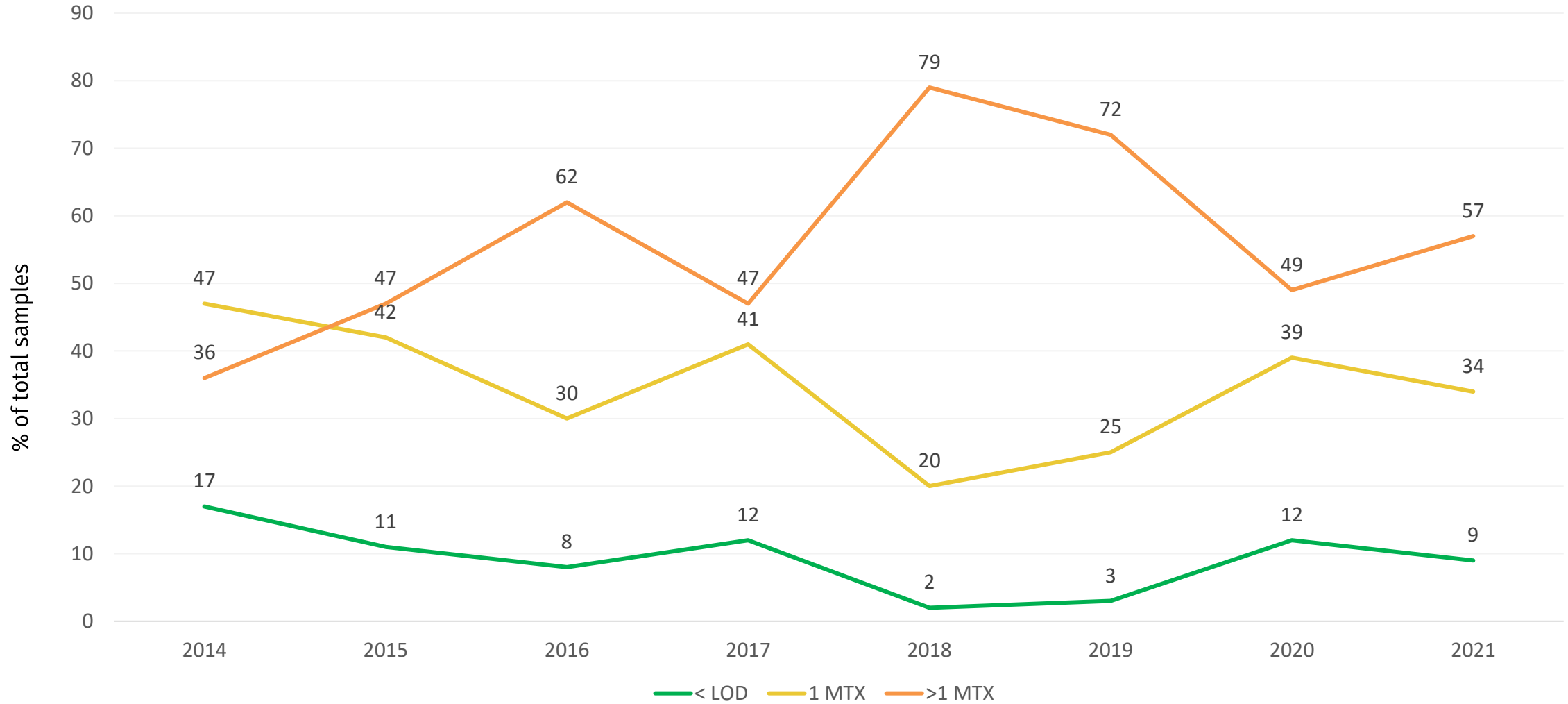


— Afla — A-Trich — B-Trich — FUM — ZEN — OTA

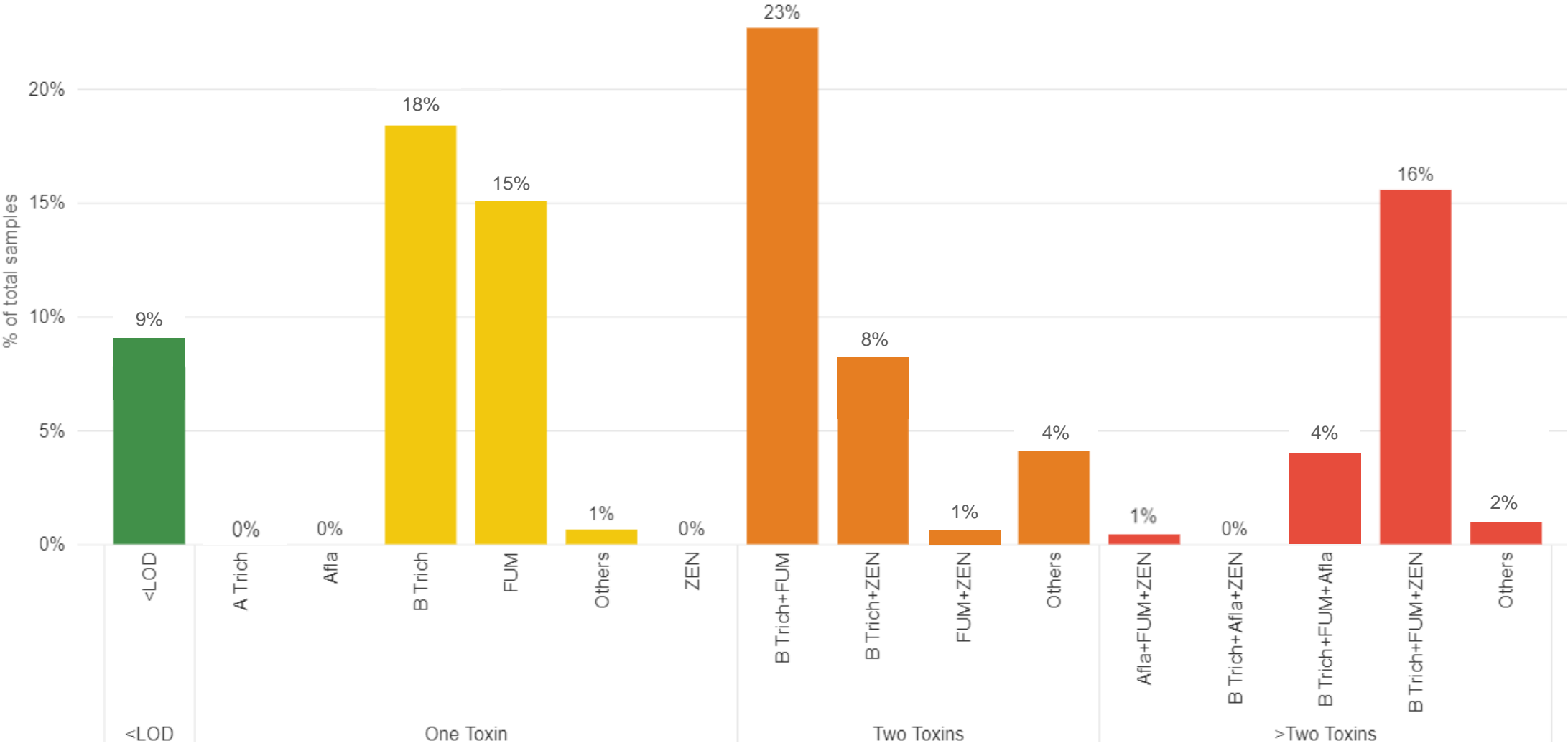
Based on the samples analyzed.



# Co-occurrence Trend in 2021 US Corn



# Co-occurrence Profile in 2021 US Corn



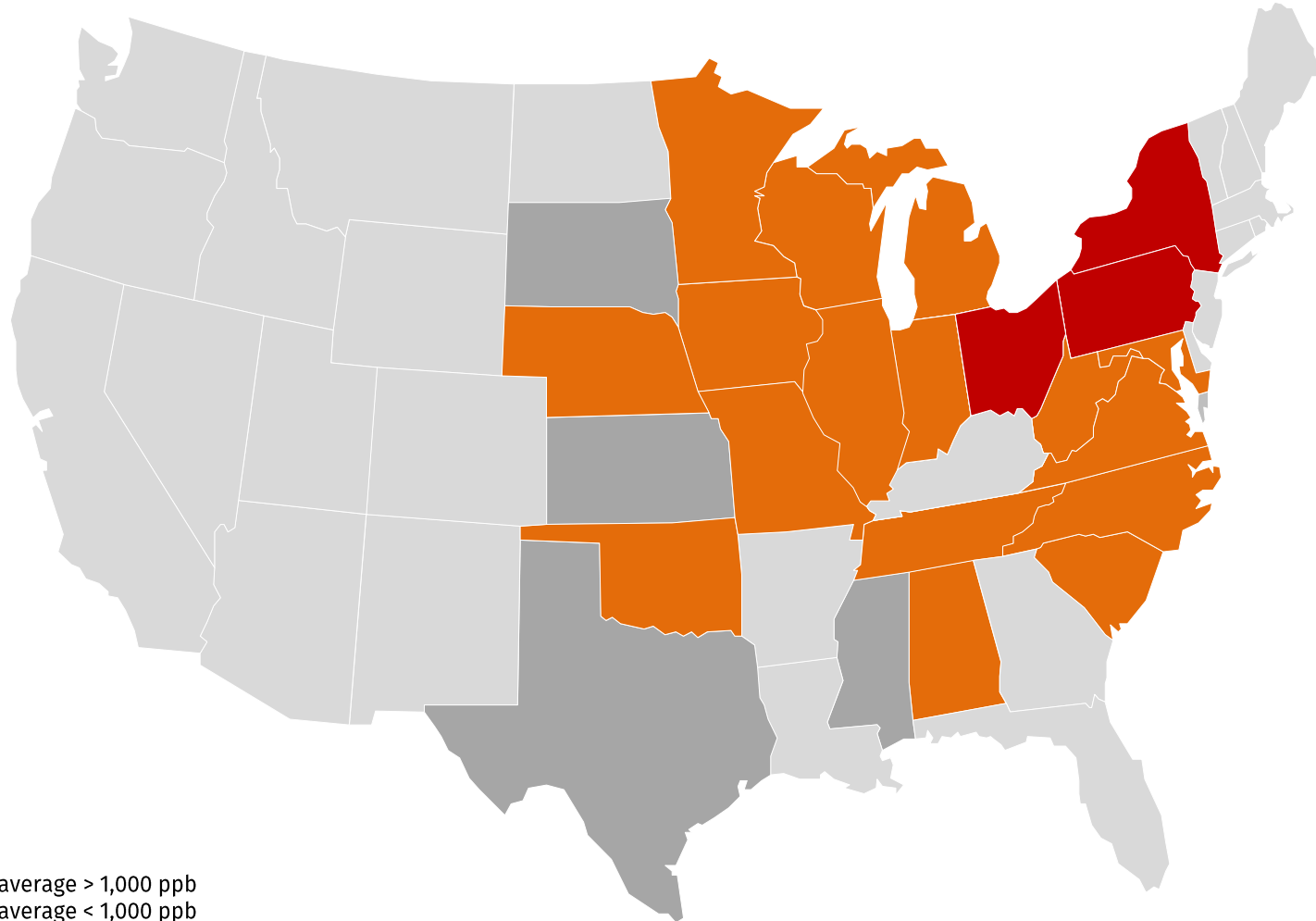
Based on the samples analyzed.







# 2021 Corn Risk by State – B-Trich

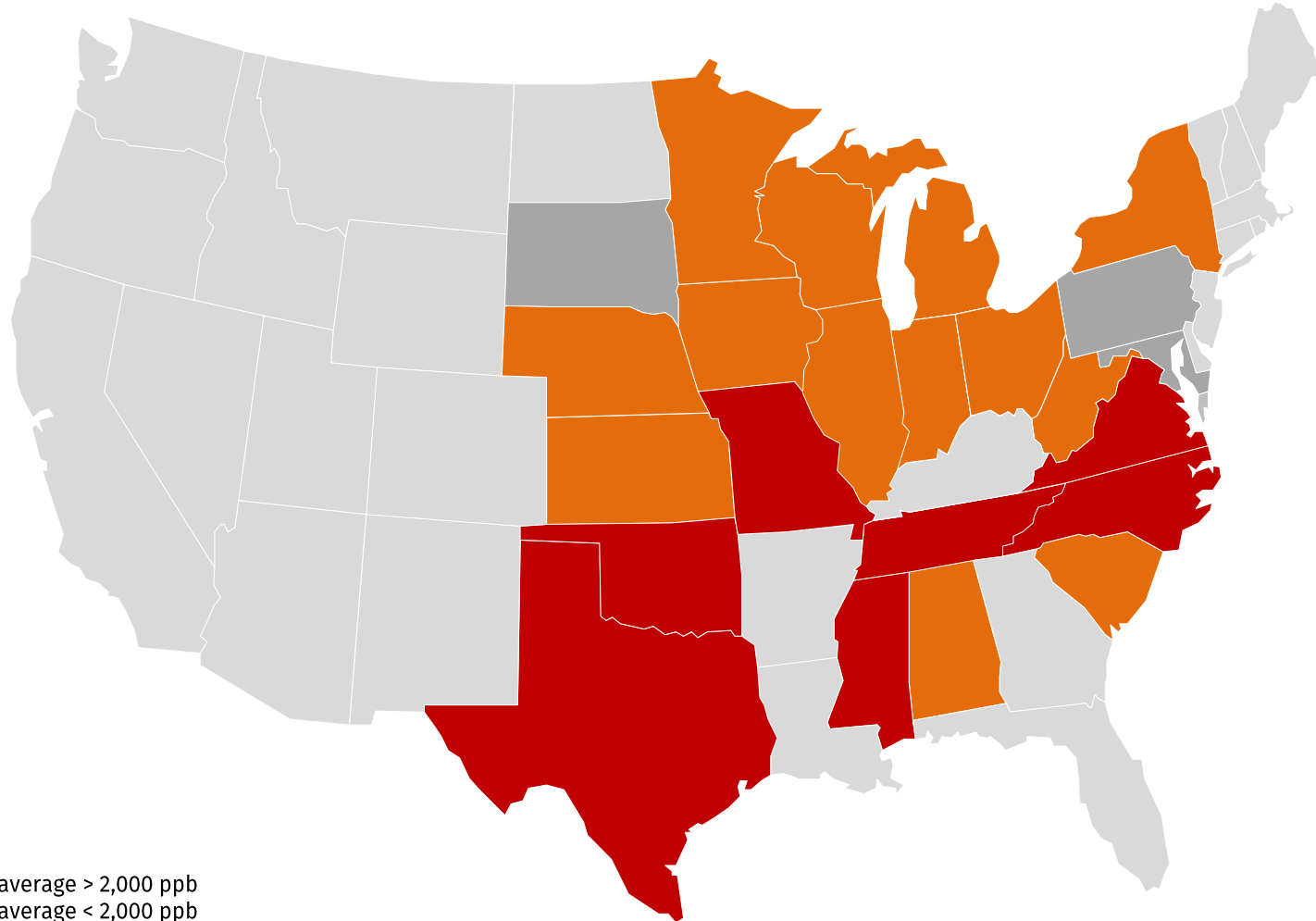


- State with average > 1,000 ppb
- State with average < 1,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
PA	2	100	2824
OH	3	100	2053
NY	1	100	1726
MI	15	100	995
WI	21	86	977
VA	5	100	732
MD	1	100	727
IN	10	100	711
NC	23	48	669
IL	16	88	592
TN	3	100	531
IA	17	94	514
MO	17	59	437
NE	13	85	371
SC	1	100	307
AL	10	70	237
MN	13	15	200
WV	1	100	167
OK	3	33	117
KS	3	0	0
MS	1	0	0
SD	2	0	0
TX	4	0	0



# 2021 Corn Risk by State – FUM

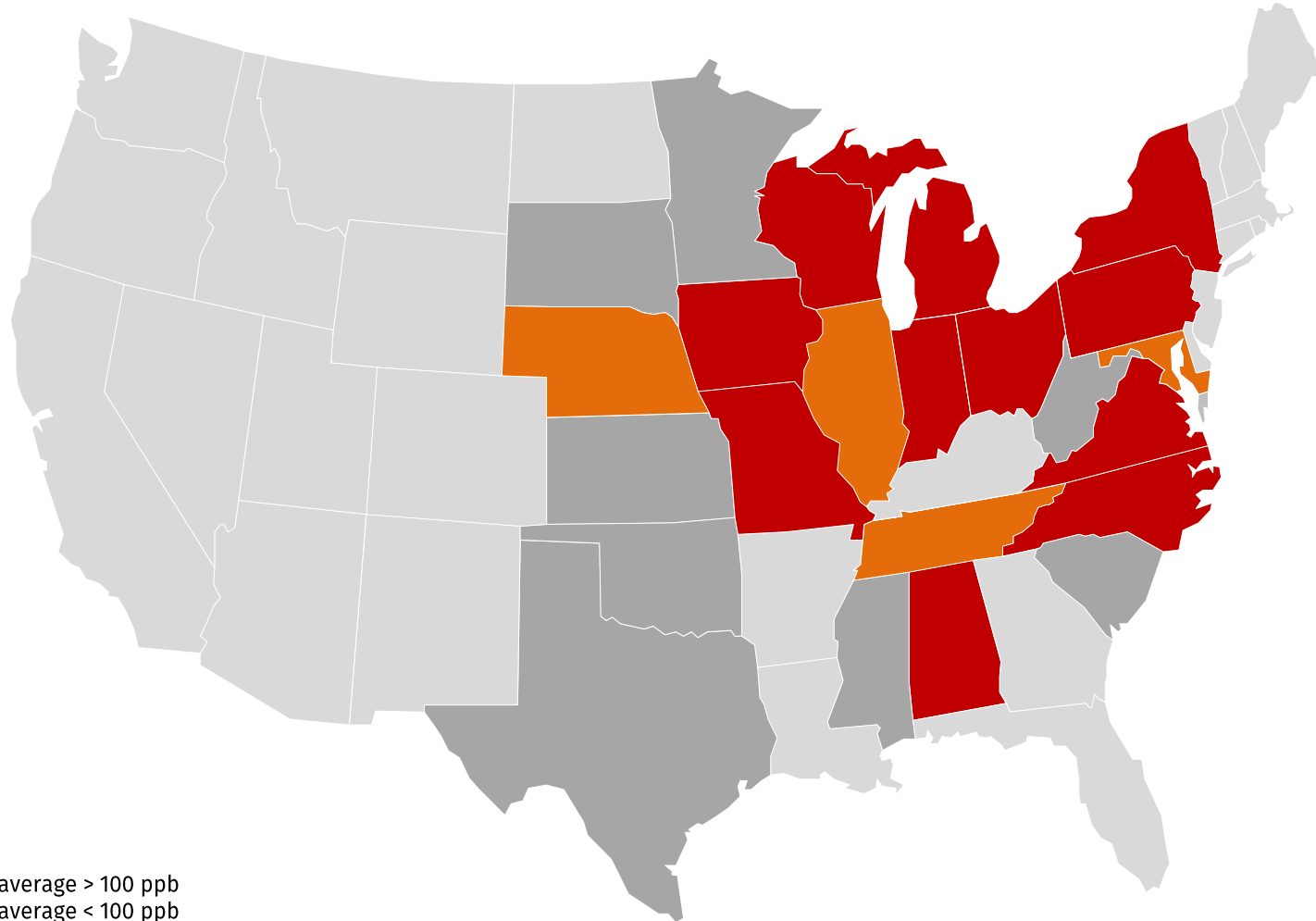


- State with average > 2,000 ppb
- State with average < 2,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
MS	1	100	9900
MO	17	94	8694
NC	23	87	7470
OK	3	100	4200
VA	5	100	4100
TN	3	100	3533
TX	4	100	3000
SC	1	100	1800
KS	3	100	1467
AL	10	90	1389
NE	13	85	1091
IL	16	50	825
IN	10	50	720
MN	13	23	700
WV	1	100	700
MI	15	47	629
NY	1	100	600
IA	17	41	443
OH	3	67	350
WI	21	33	329
MD	1	0	0
PA	2	0	0
SD	2	0	0



# 2021 Corn Risk by State – ZEN



- 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
MI	15	53	1620
NY	1	100	522
IN	10	40	290
VA	5	40	222
AL	10	20	197
MO	17	6	182
OH	3	67	135
IA	17	35	132
NC	23	30	125
PA	2	50	123
WI	21	19	102
IL	16	25	96
MD	1	100	88
NE	13	23	64
TN	3	67	61
KS	3	0	0
MN	13	0	0
MS	1	0	0
OK	3	0	0
SC	1	0	0
SD	2	0	0
TX	4	0	0
WV	1	0	0



# Mycotoxin Survey Summary – 2021 US Corn



**91%** positive vs.  
88% in 2020



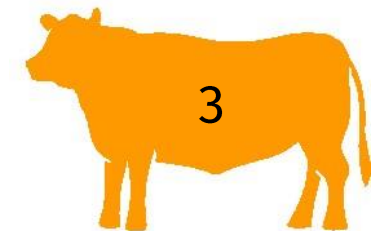
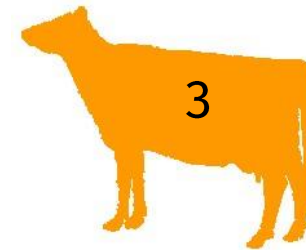
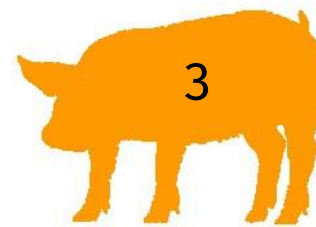
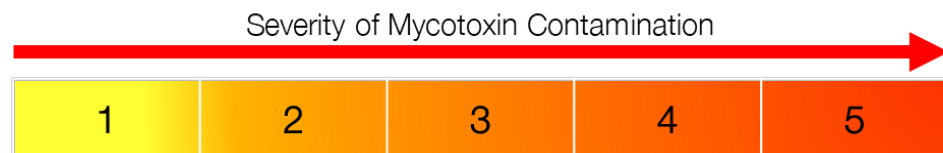
**57%** >1 MTX vs.  
49% in 2020

**B-Trich:** 71% vs. 58%

**FUM:** 63% vs. 64%

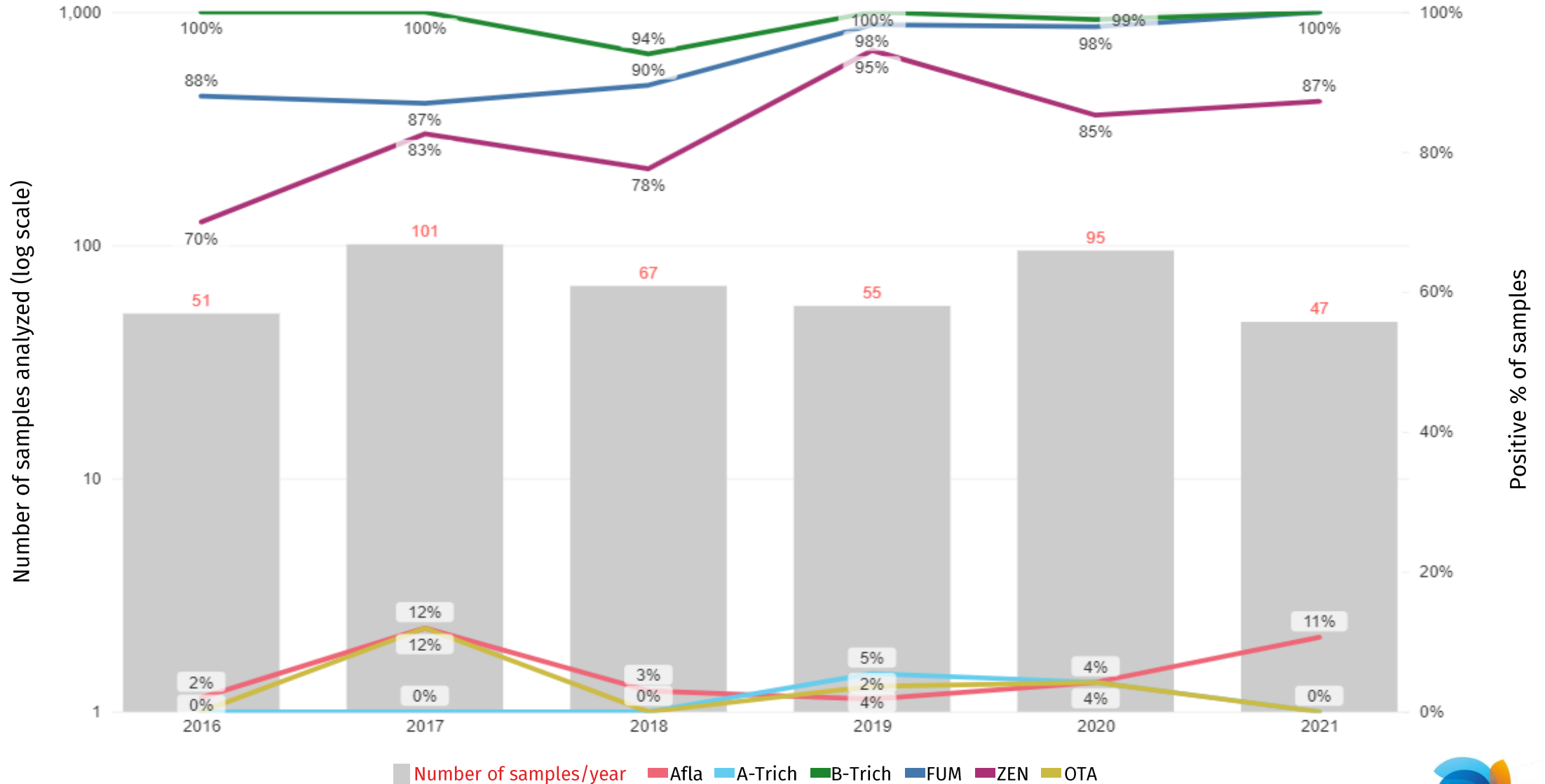
**ZEN:** 26% vs. 20%

## Forecasted potential risk for livestock production\*:

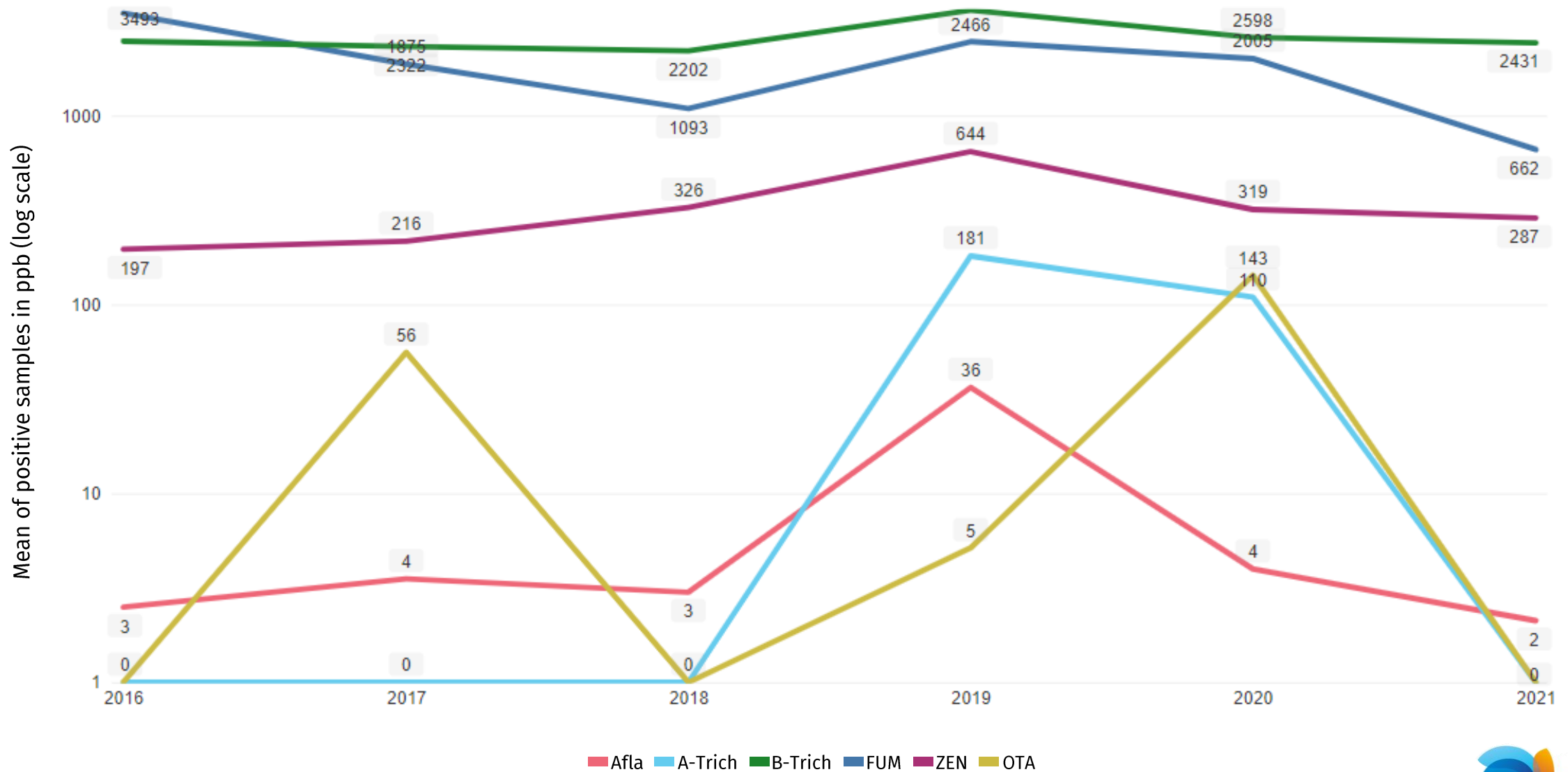


# 2021 US Corn By-Products (as-fed basis)

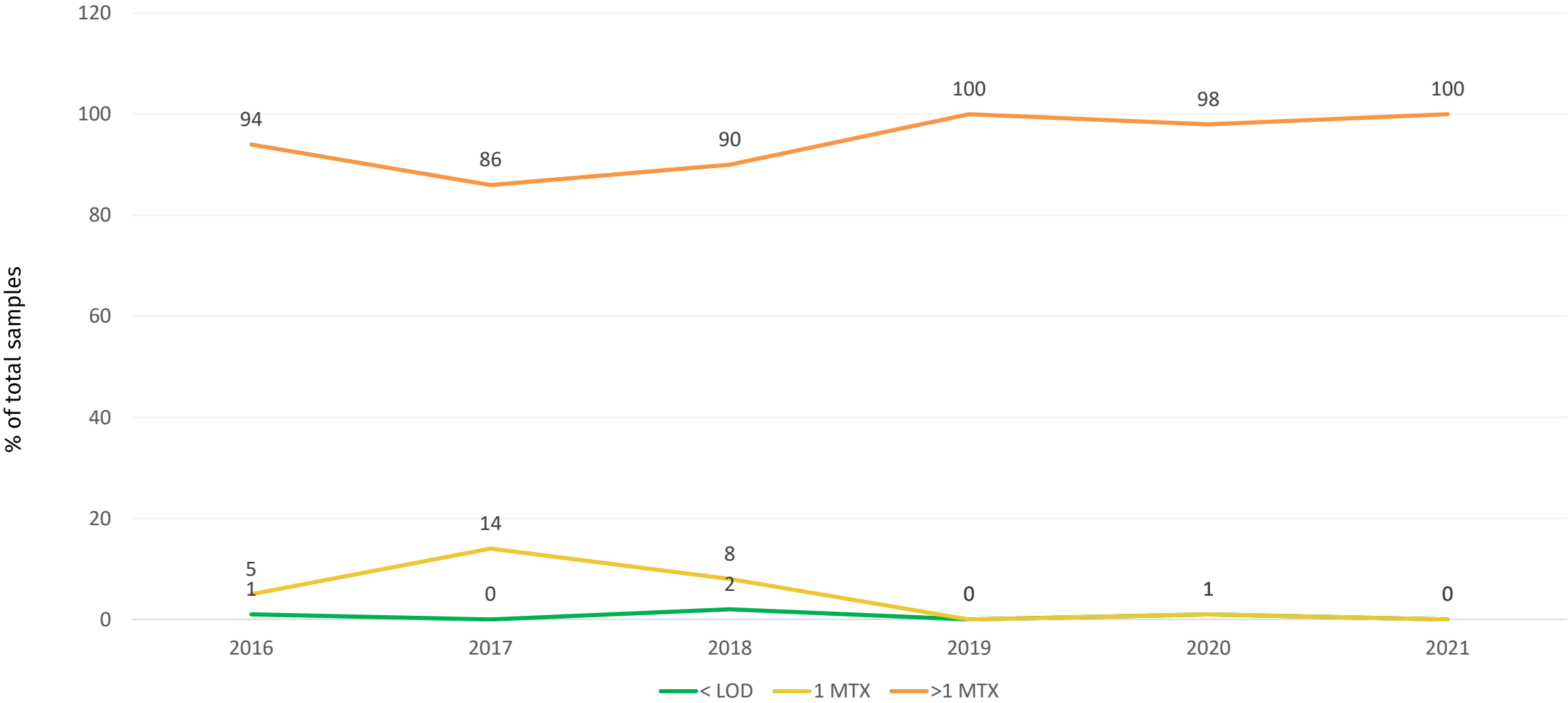
# Occurrence Trend in 2021 US Corn By-Products



# Mean of Positives Trend in 2021 US Corn By-Products



# Co-occurrence Trend in 2021 US Corn By-Products

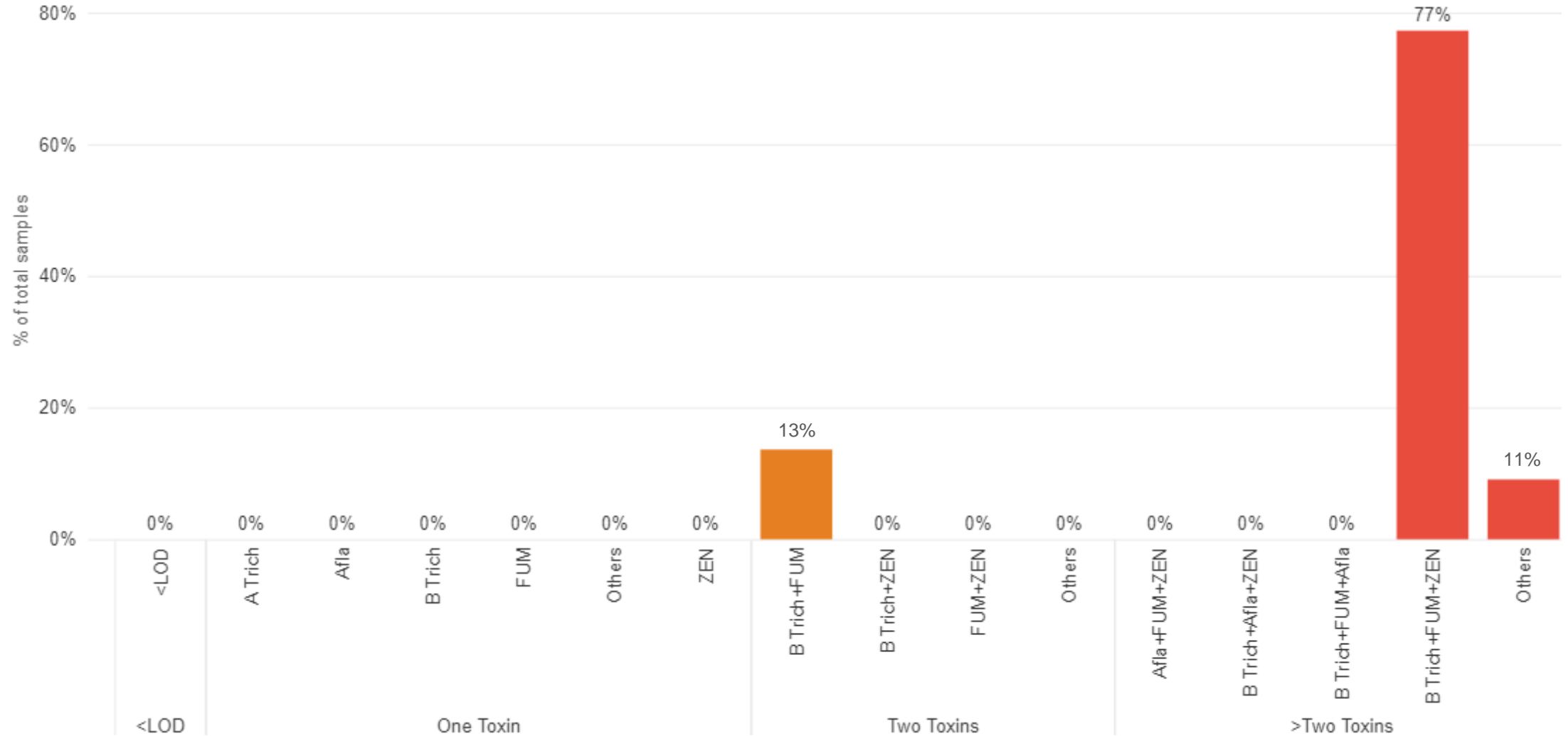


Based on the samples analyzed.

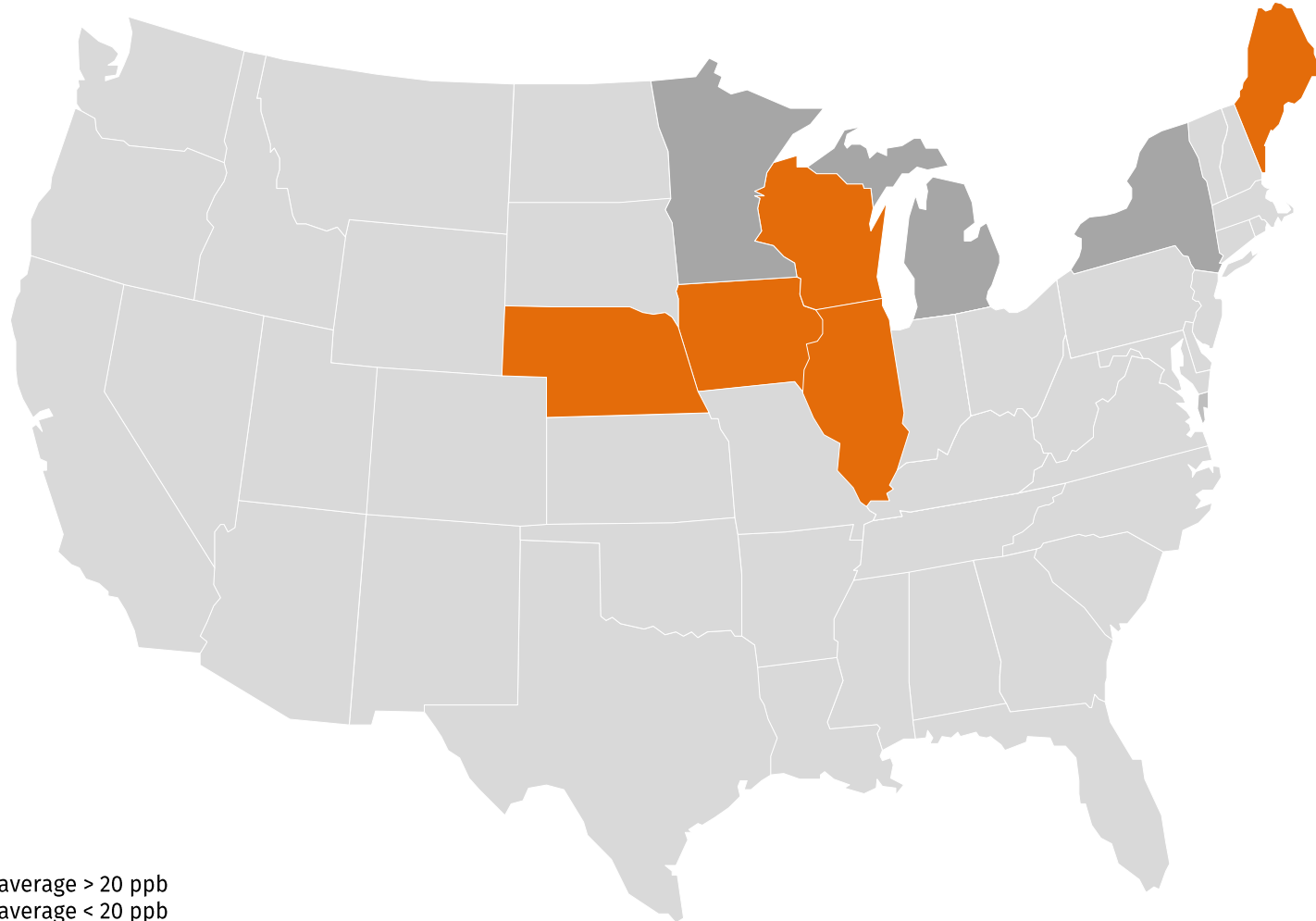




# Co-occurrence Profile in 2021 US Corn By-Products



# 2021 Corn By-Products Risk by State – Afla

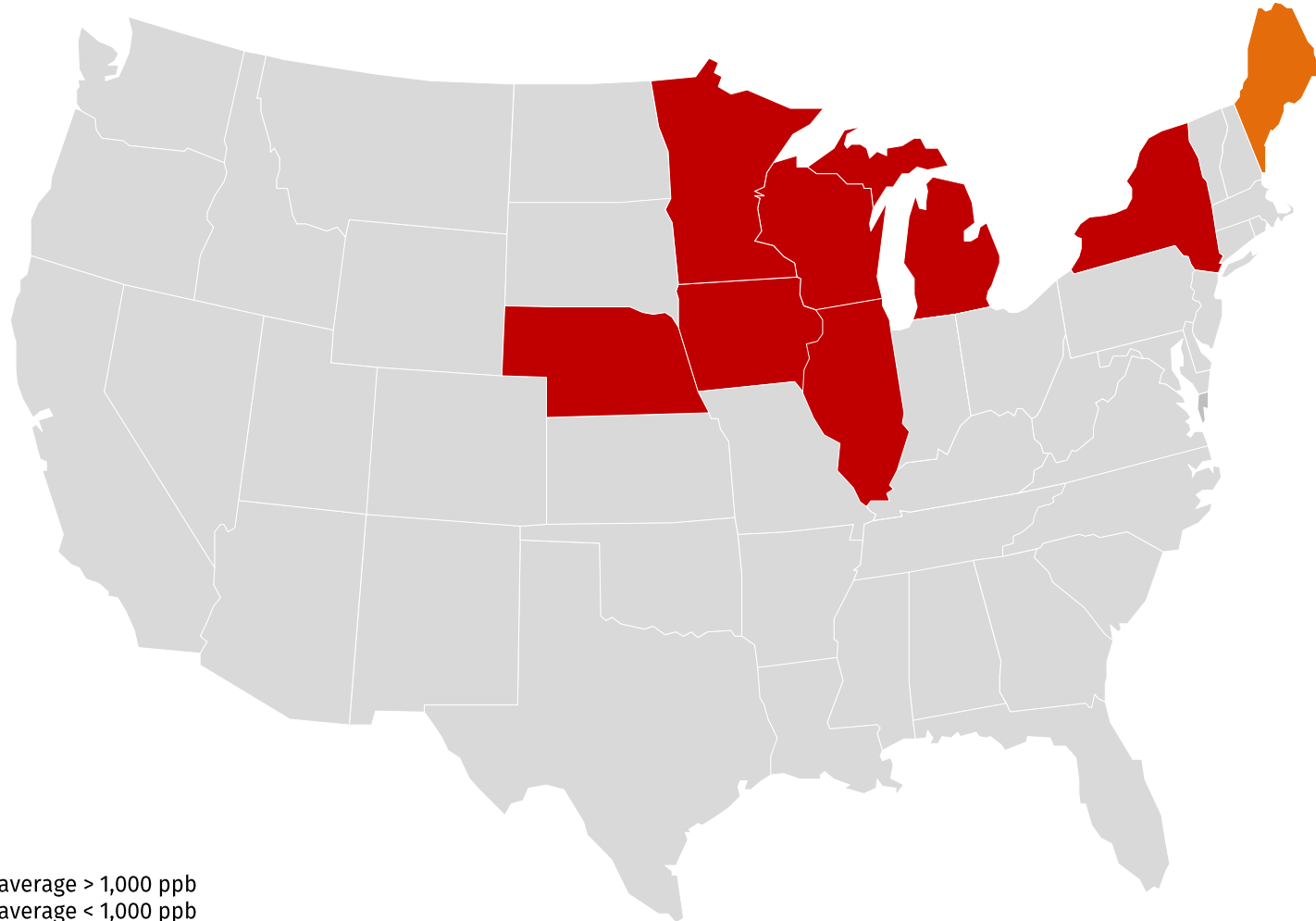


State	Number of Samples	% Positive Samples	Avg of Positive Samples
NE	2	50%	4
IL	5	20%	2
ME	1	100%	2
IA	17	6%	2
WI	15	7%	1
MI	3	0%	0
MN	2	0%	0
NY	2	0%	0

- State with average > 20 ppb
- State with average < 20 ppb
- State with samples < LOD (1 ppb)
- No sample submitted



# 2021 Corn By-Products Risk by State – B-Trich

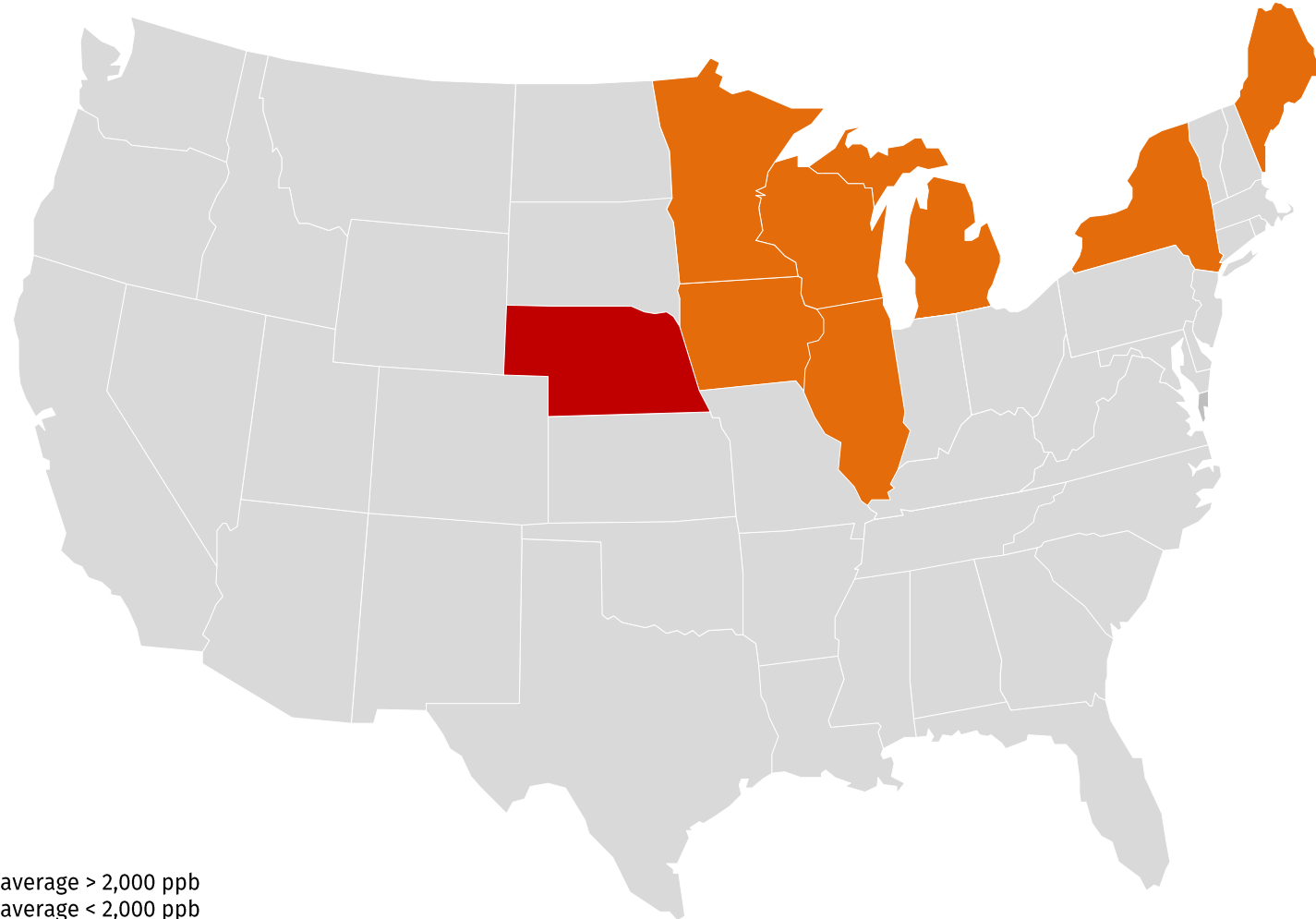


- State with average > 1,000 ppb
- State with average < 1,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
MI	3	100%	4109
NY	2	100%	3745
WI	15	100%	3421
NE	2	100%	2933
IA	17	100%	1579
IL	5	100%	1400
MN	2	100%	1383
ME	1	100%	662



# 2021 Corn By-Products Risk by State – FUM

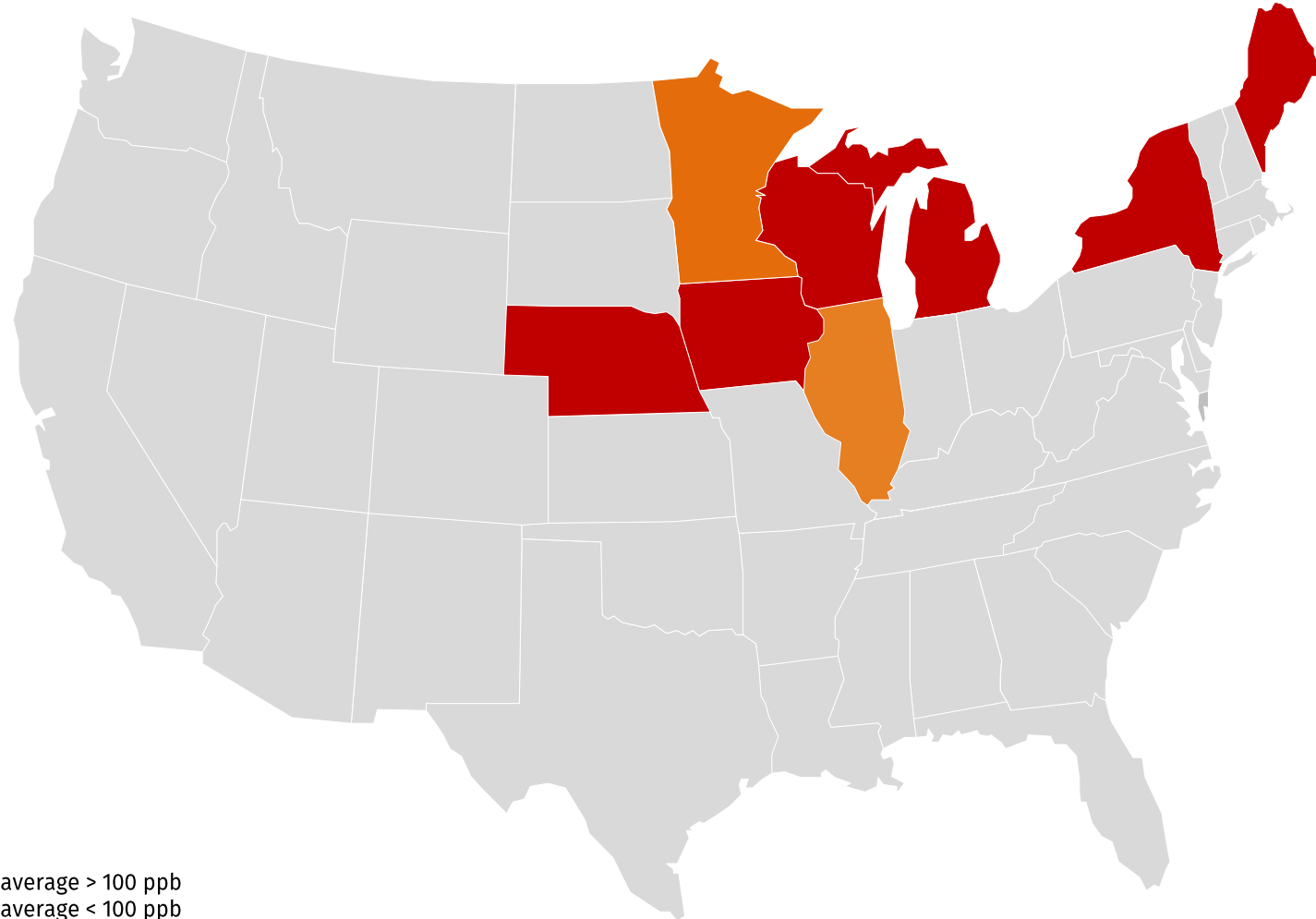


- State with average > 2,000 ppb
- State with average < 2,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
NE	2	100%	2650
MI	3	100%	1167
WI	15	100%	700
IL	5	100%	620
IA	17	100%	441
MN	2	100%	300
NY	2	100%	250
ME	1	100%	100



# 2021 Corn By-Products Risk by State – ZEN

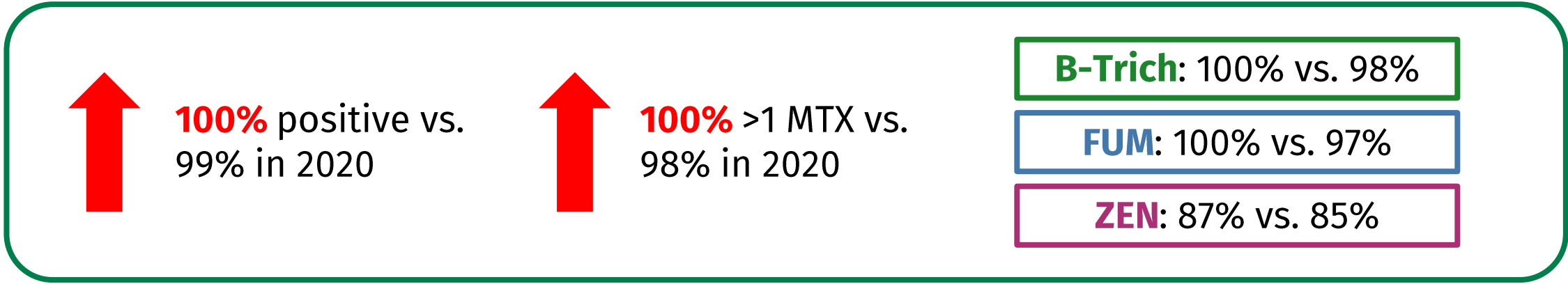


State	Number of Samples	% Positive Samples	Avg of Positive Samples
NY	2	100%	1766
MI	3	100%	367
WI	15	100%	326
NE	2	100%	154
ME	1	100%	110
IA	17	65%	105
IL	5	100%	96
MN	2	100%	90

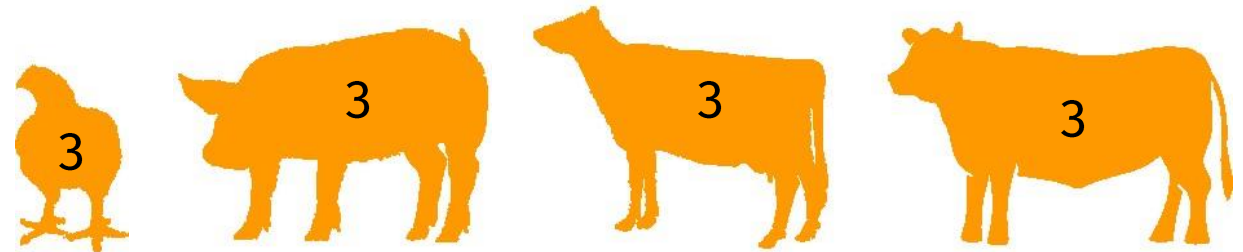
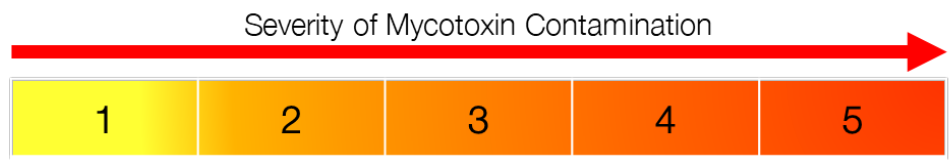
- State with average > 100 ppb
- State with average < 100 ppb
- State with samples < LOD (51.7 ppb)
- No sample submitted



# Mycotoxin Survey Summary – 2021 US Corn By-Products



## Forecasted potential risk for livestock production\*:



\*Based on the samples analyzed.

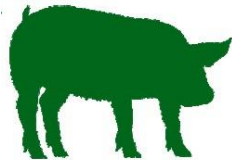
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