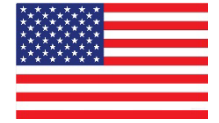


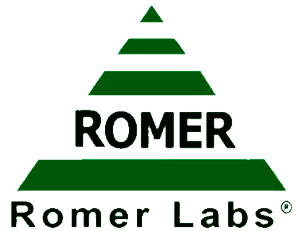
# Mycotoxin Occurrence in 2020 US Corn & Corn By-products Feb 2021 Update

Feb 4, 2021

# Mycotoxins & Analysis

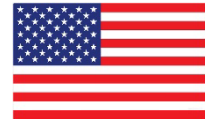


LC-MS/MS



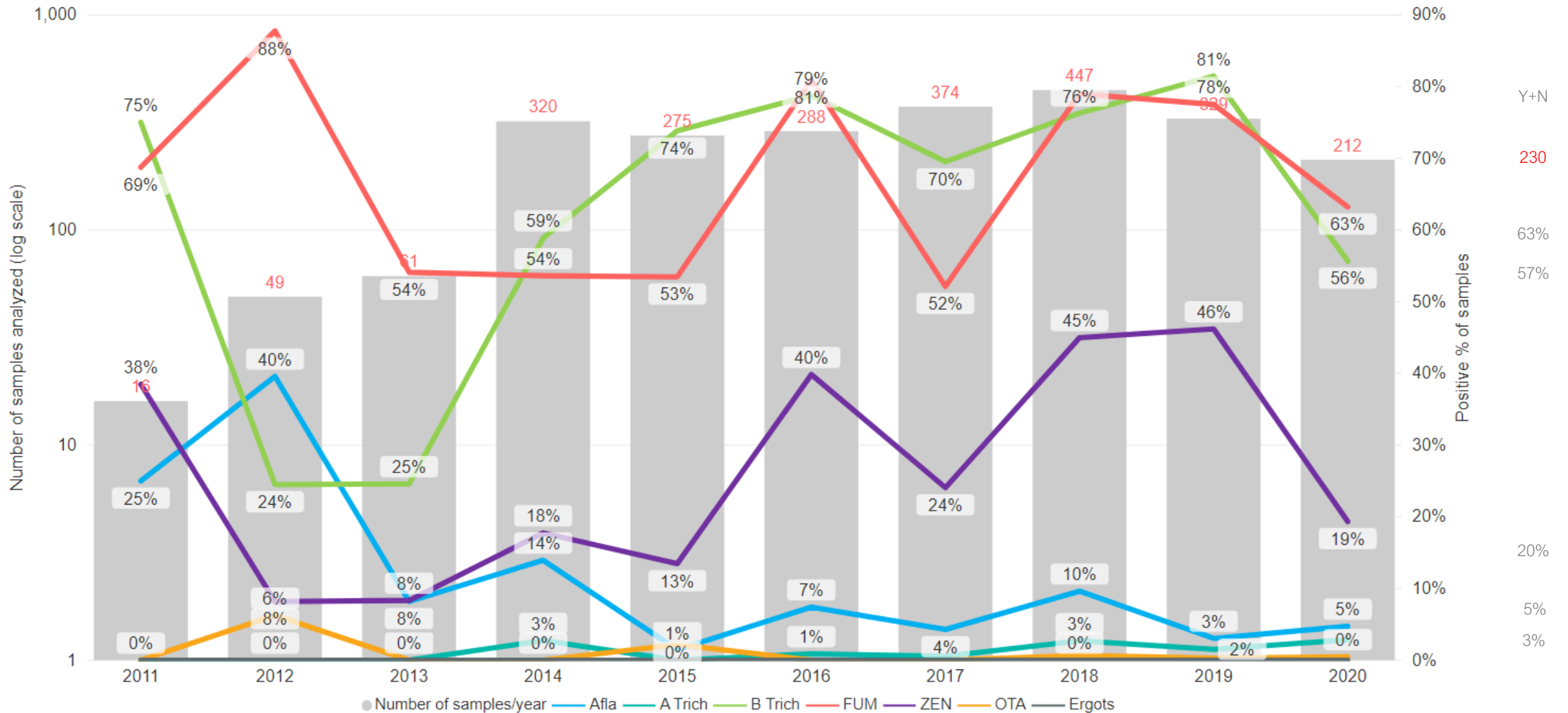
2 Labs

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

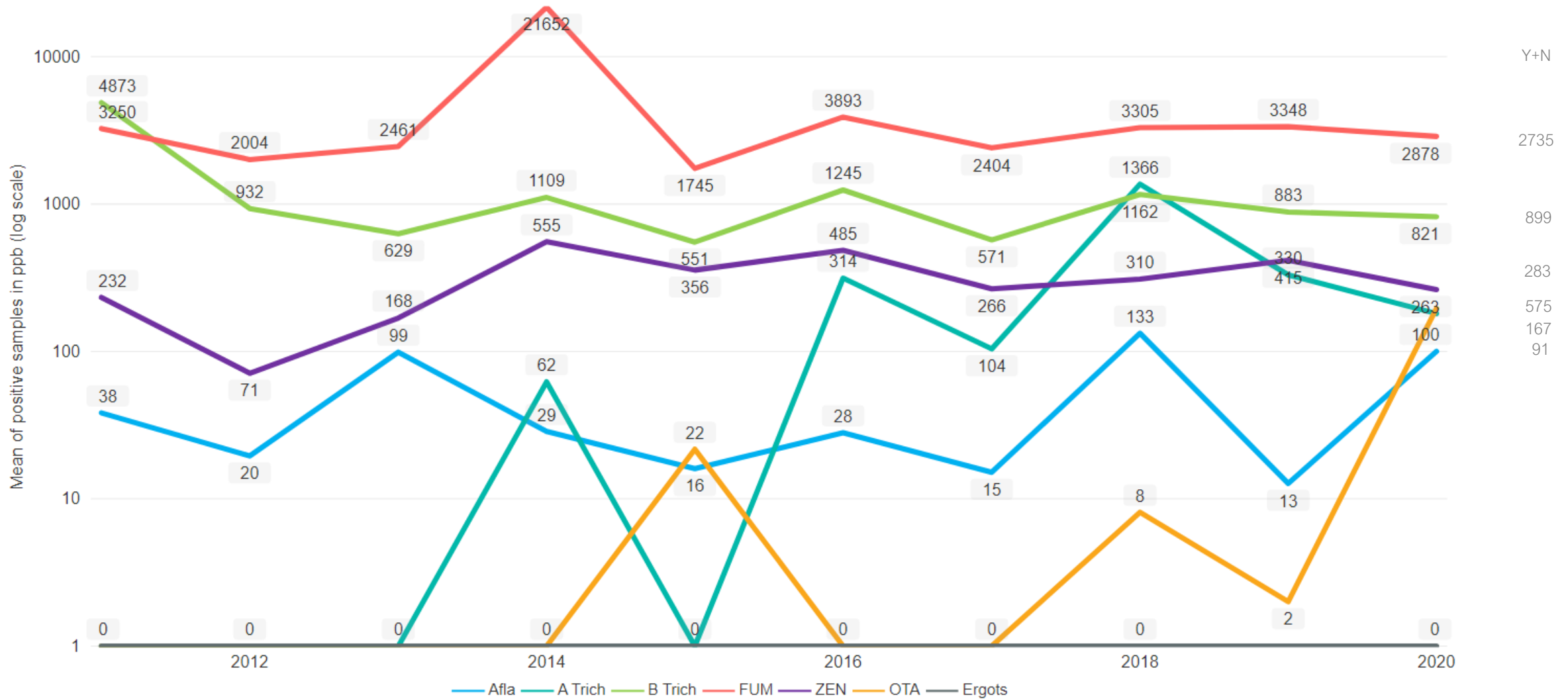
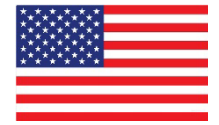


# 2020 US Corn (as-fed basis)

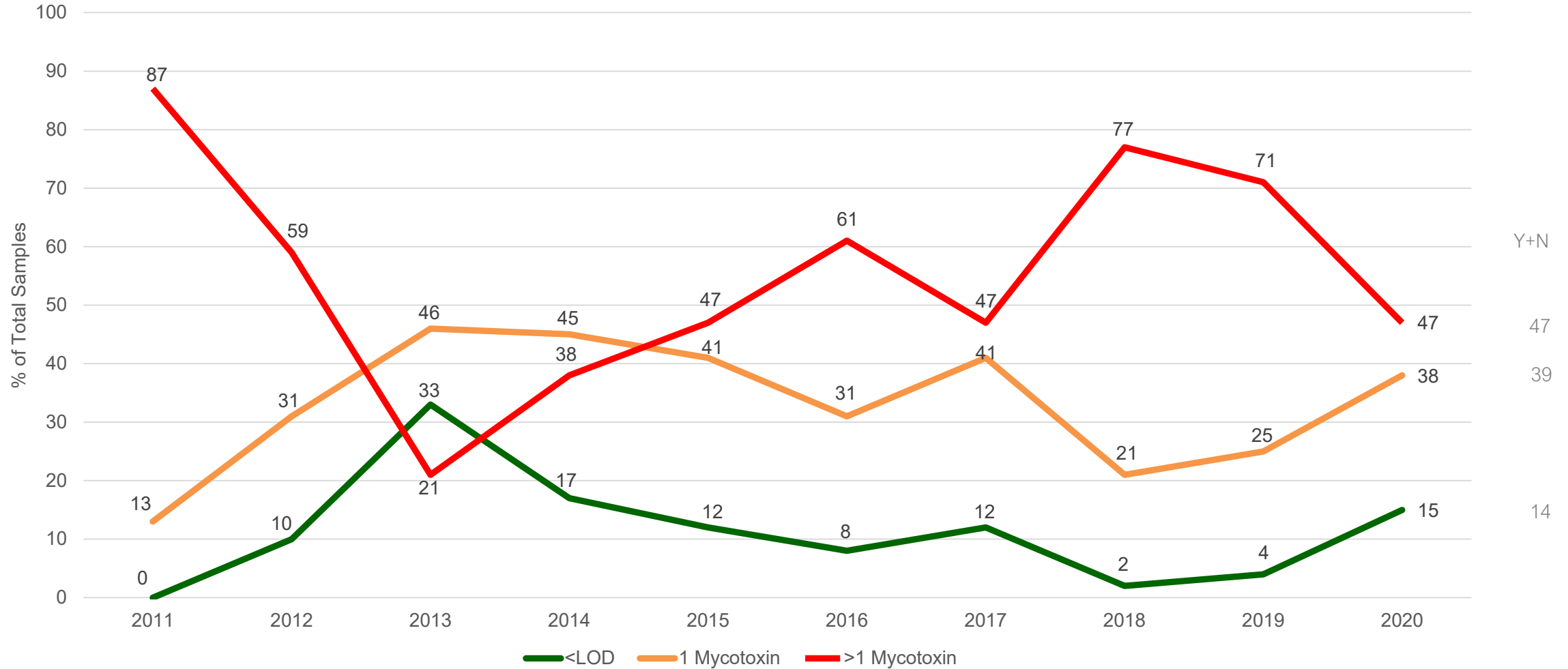
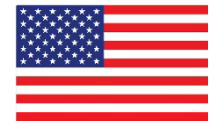
# MTX Occurrence Trend in 2020 US Corn



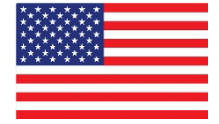
# Mean of Positives Trend in 2020 US Corn



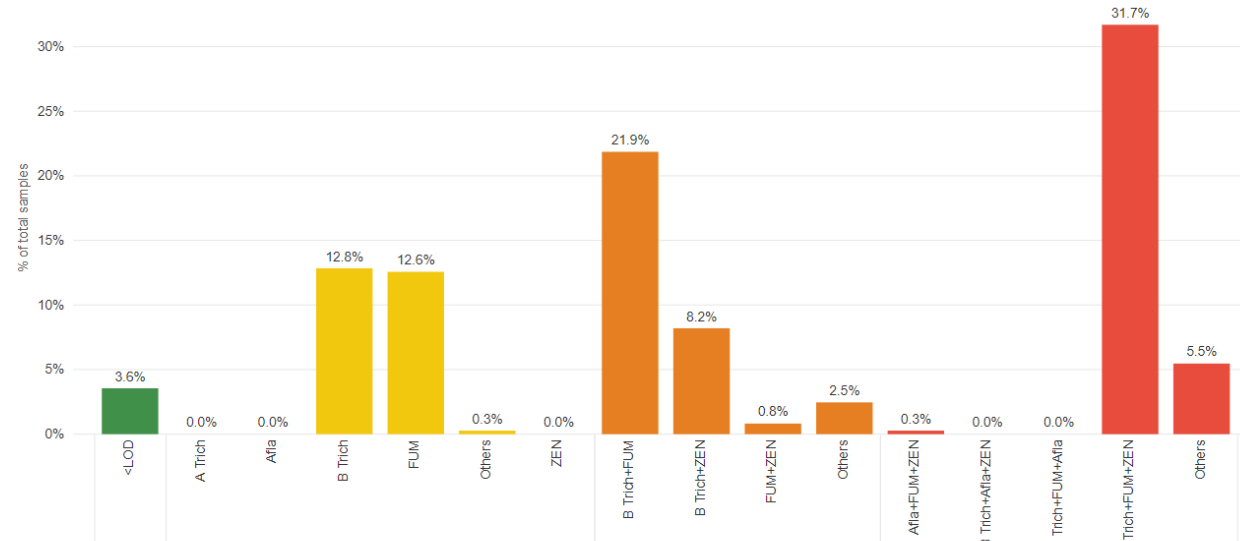
# Mycotoxin Co-occurrence Trend in 2020 US Corn



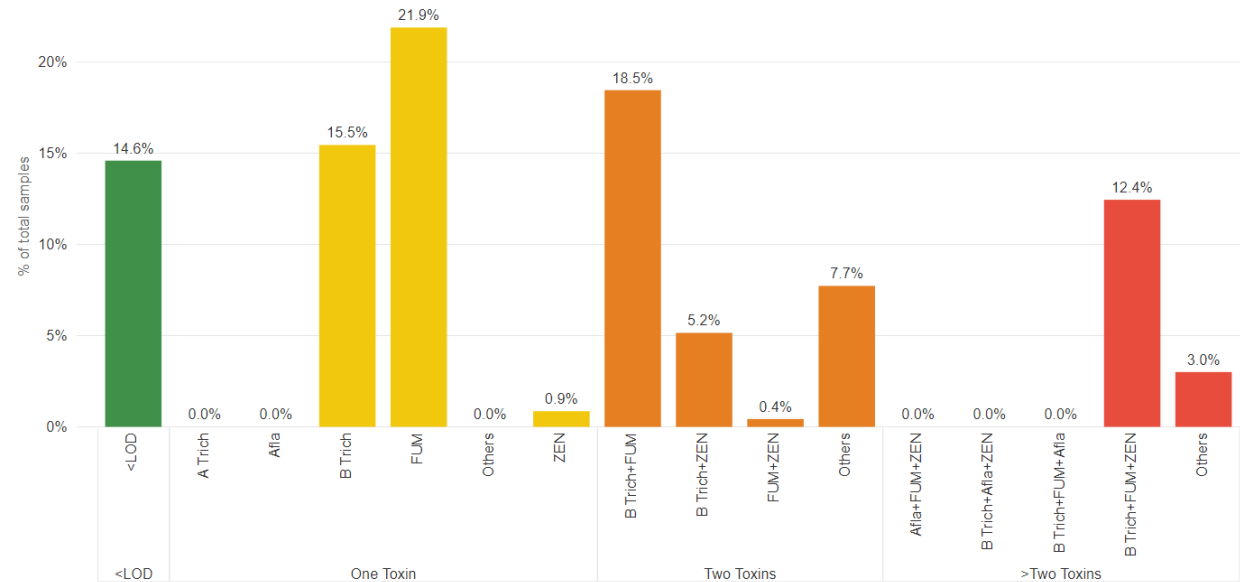
# Mycotoxin Co-occurrence 2019 vs. 2020 in US Corn



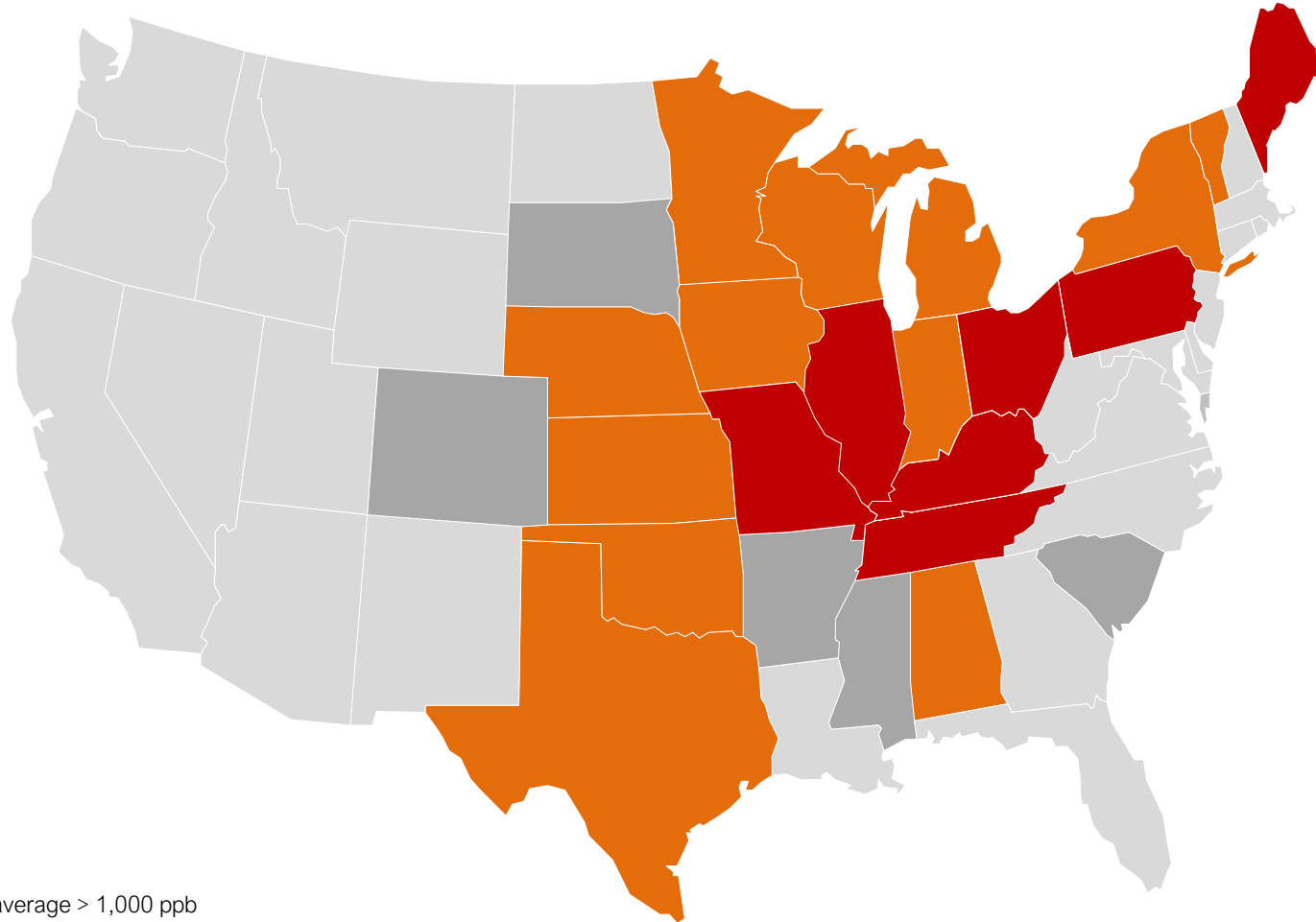
2019



2020



# 2020 Corn Risk by State - B Trich

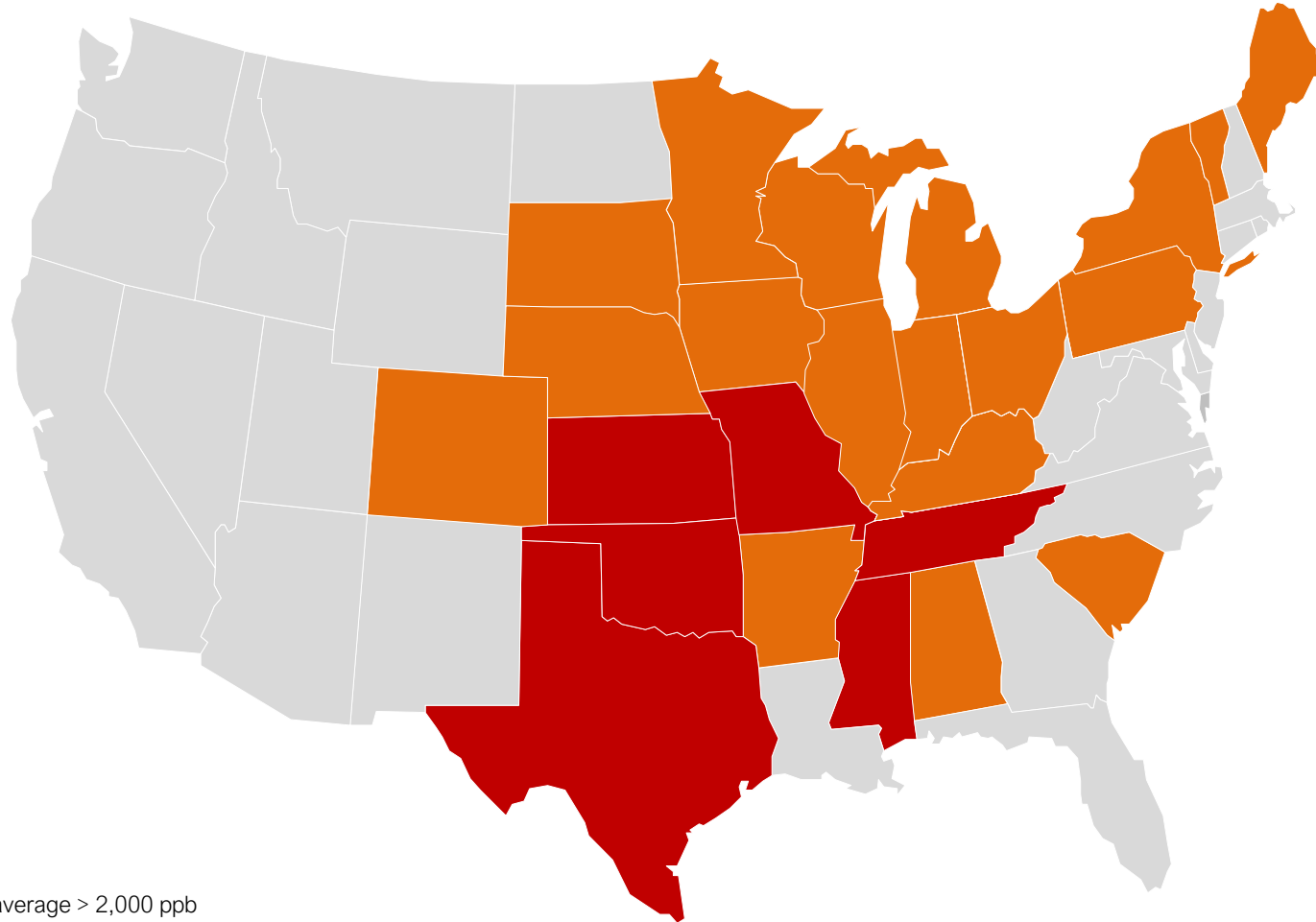


- State with average > 1,000 ppb
- State with average < 1,000 ppb
- State with samples < LOD (100 ppb)
- No sample submitted

State	Number of Samples	% Positive Samples	Avg of Positive Samples
ME	4	75%	4041
OH	5	100%	3660
PA	2	100%	1480
KY	1	100%	1309
MO	19	58%	1289
IL	20	95%	1028
TN	4	50%	1013
MI	8	50%	894
IN	11	91%	873
NY	4	100%	618
OK	7	43%	572
IA	25	24%	549
NE	28	46%	540
AL	8	25%	492
WI	29	97%	460
MN	25	48%	419
VT	2	100%	225
TX	6	17%	110
KS	9	22%	110



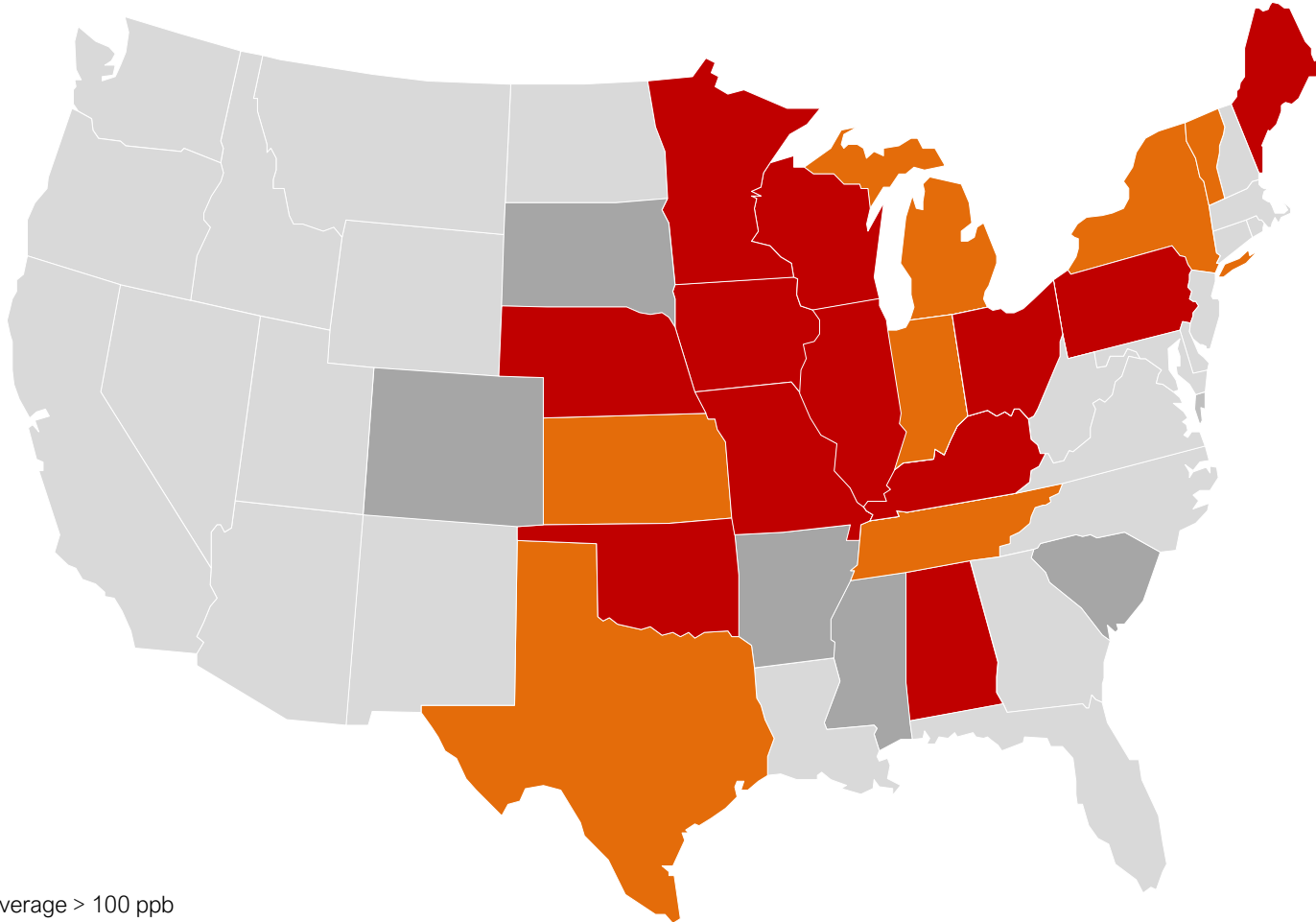
# 2020 Corn Risk by State - FUM



- 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
KS	9	100%	11256
MO	19	95%	8633
MS	1	100%	8200
TX	6	100%	6533
OK	7	71%	2900
TN	4	100%	2200
AR	2	100%	1800
AL	8	100%	1513
OH	5	60%	1384
SC	2	100%	1000
MN	25	24%	867
NE	28	64%	867
CO	7	86%	800
VT	2	50%	700
IN	11	45%	560
NY	4	100%	541
KY	1	100%	500
IL	20	70%	486
WI	29	45%	438
PA	2	50%	400
MI	8	38%	300
IA	25	56%	293
ME	4	25%	240
SD	1	100%	200

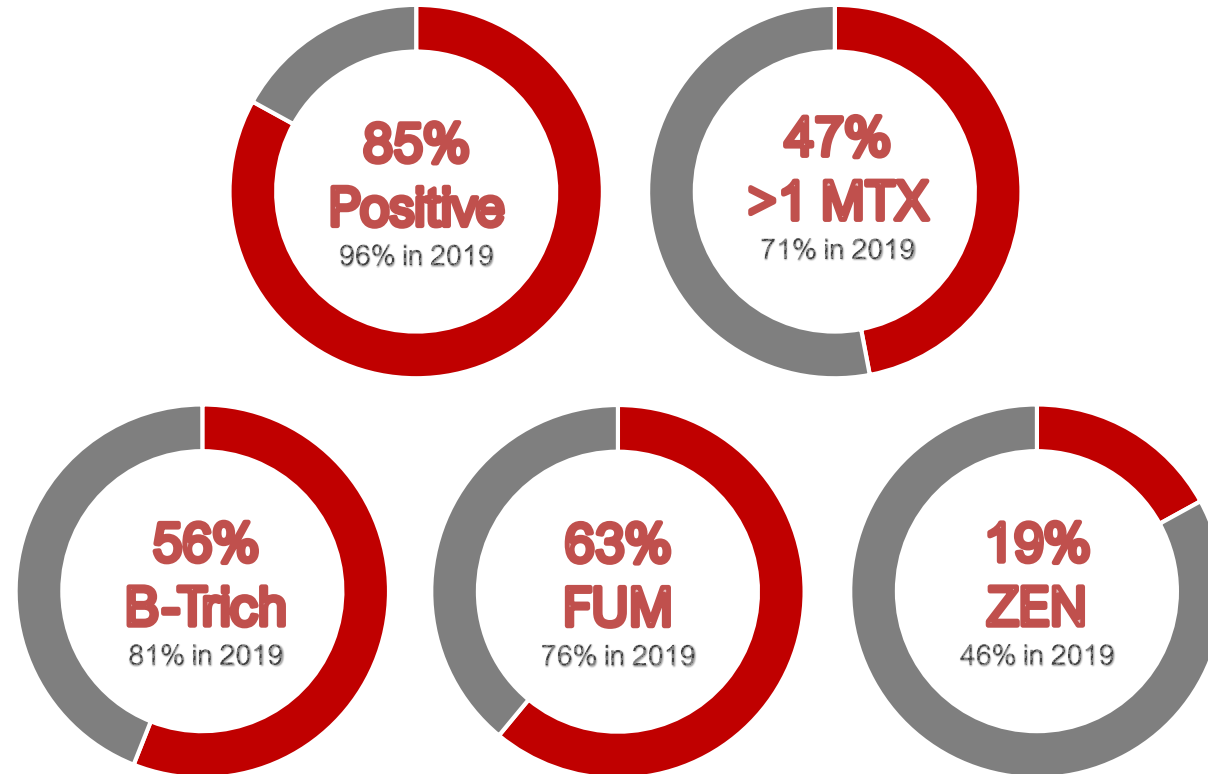
# 2020 Corn Risk by State - ZEN



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

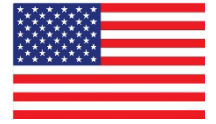
State	Number of Samples	% Positive Samples	Avg of Positive Samples
ME	4	25%	939
MO	19	32%	496
OH	5	80%	392
IL	20	50%	338
NE	28	18%	289
MN	25	12%	209
WI	29	10%	176
PA	2	50%	132
OK	7	14%	118
AL	8	25%	112
IA	25	12%	108
TN	4	25%	86
IN	11	27%	82
NY	4	25%	76
MI	8	13%	73

# Mycotoxin Survey Summary - 2020 US Corn



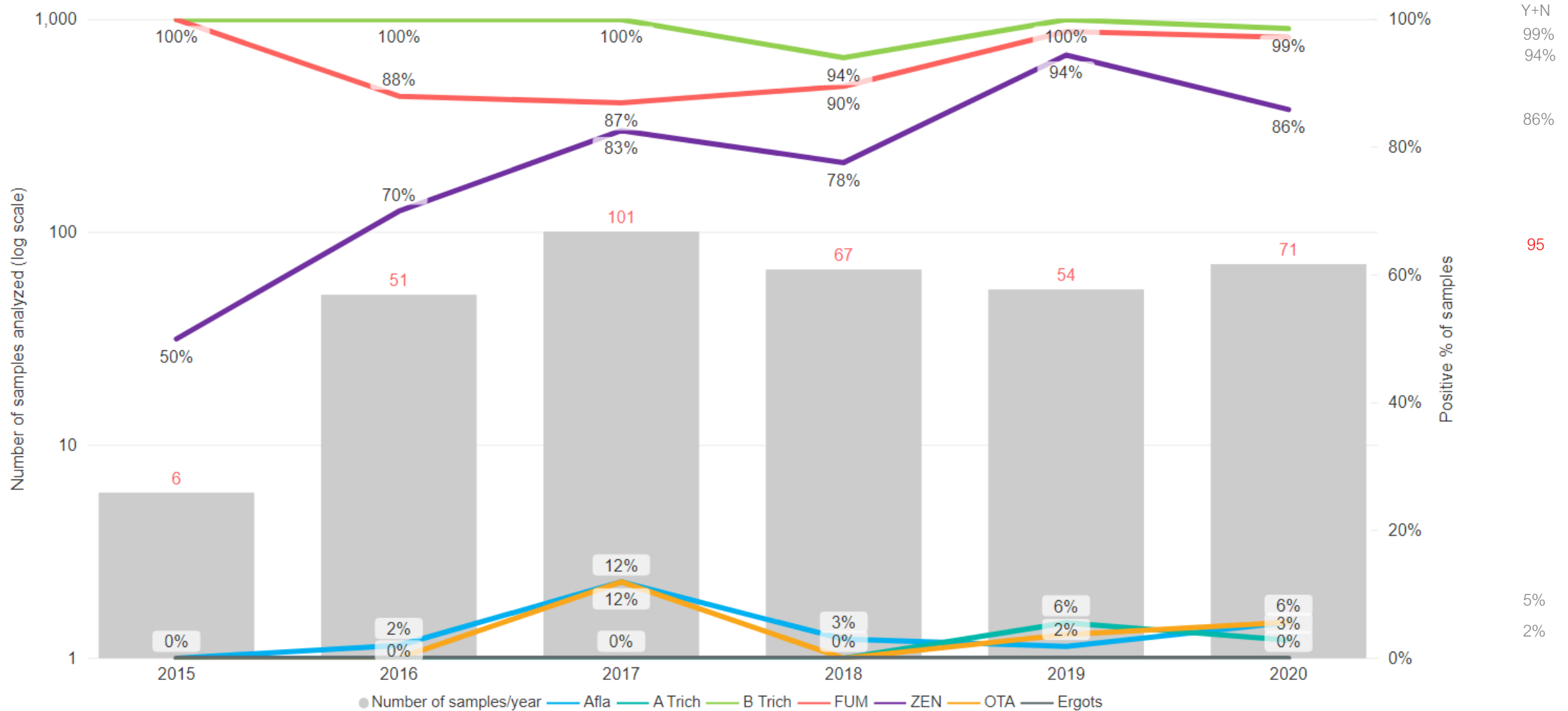
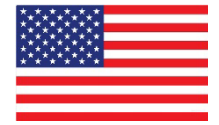
Forecasted risk for livestock production



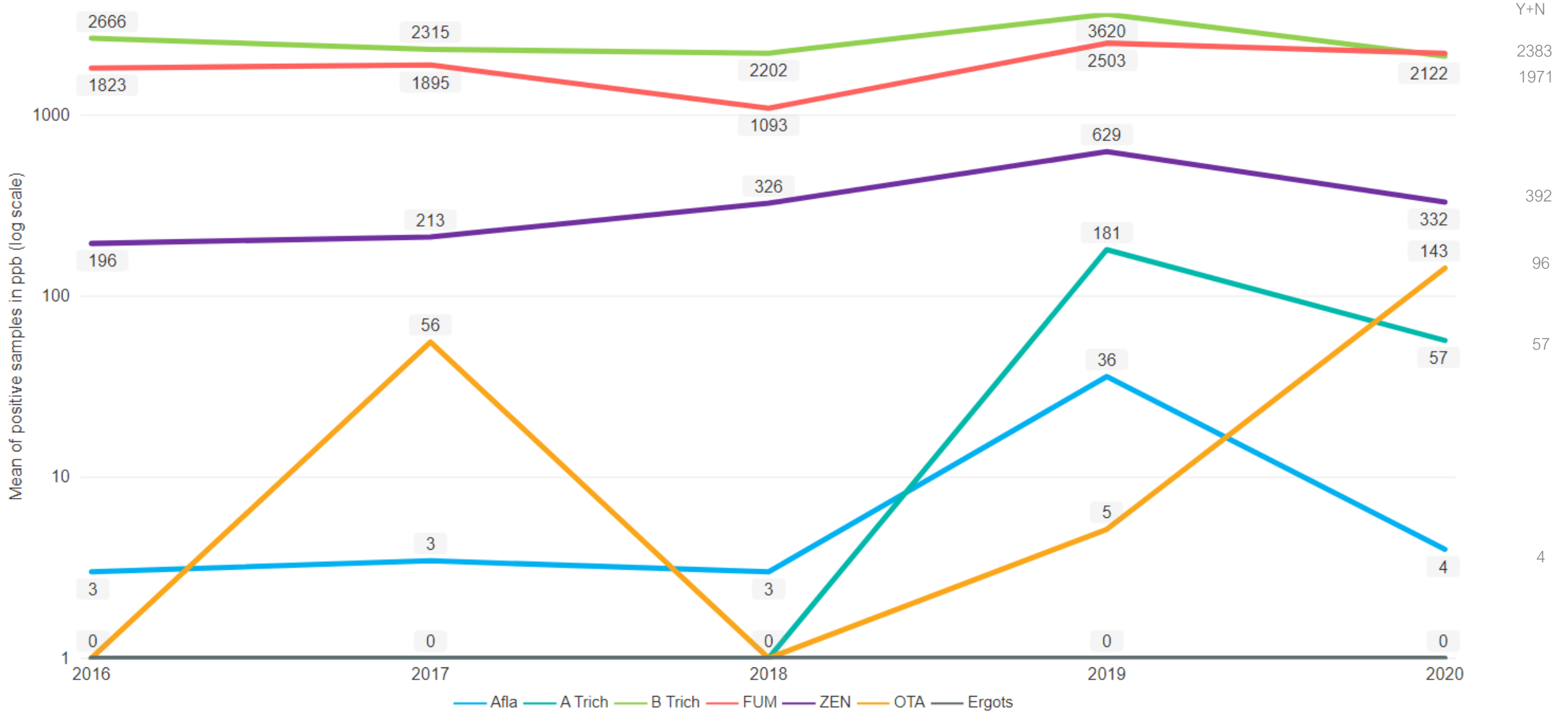
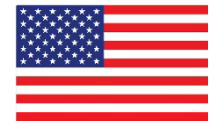


# 2020 US Corn By-products (as-fed basis)

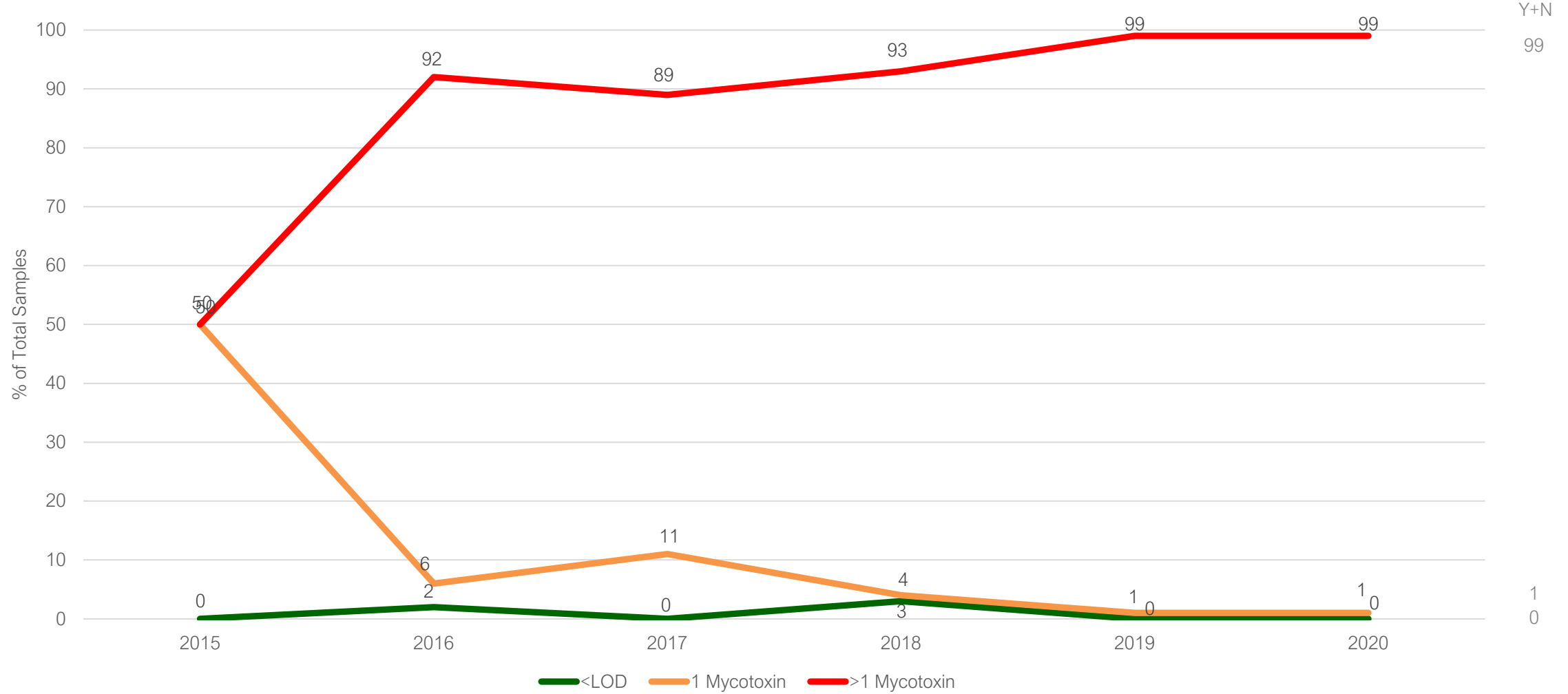
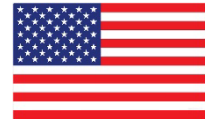
# Occurrence Trend in USA



# Mean of Positives Trend in USA



# Co-occurrence Trend in USA



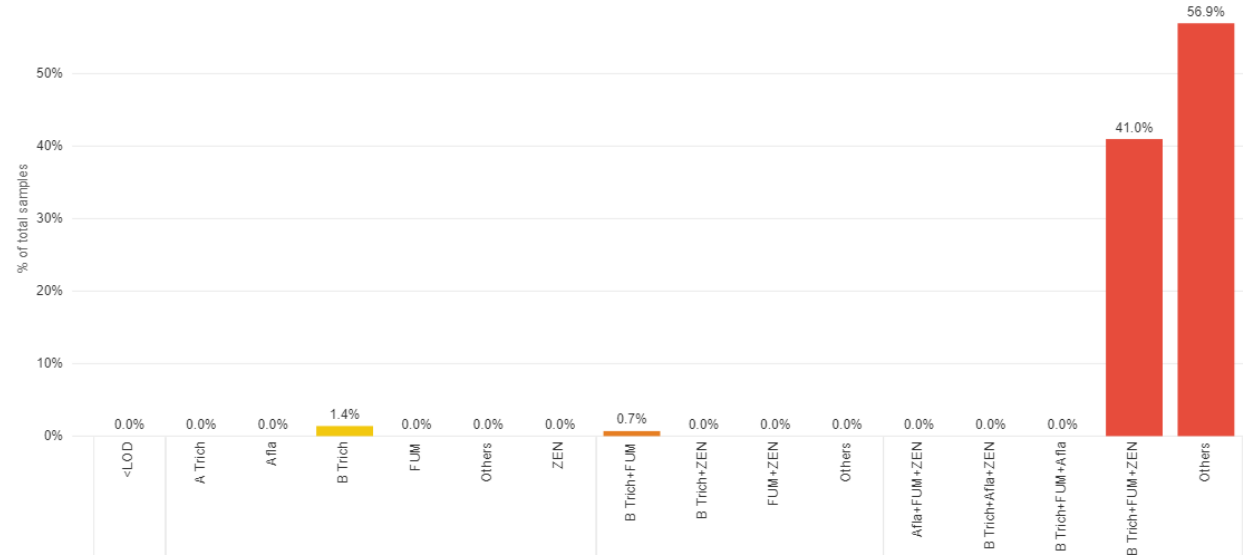
Y+N  
99

1  
0

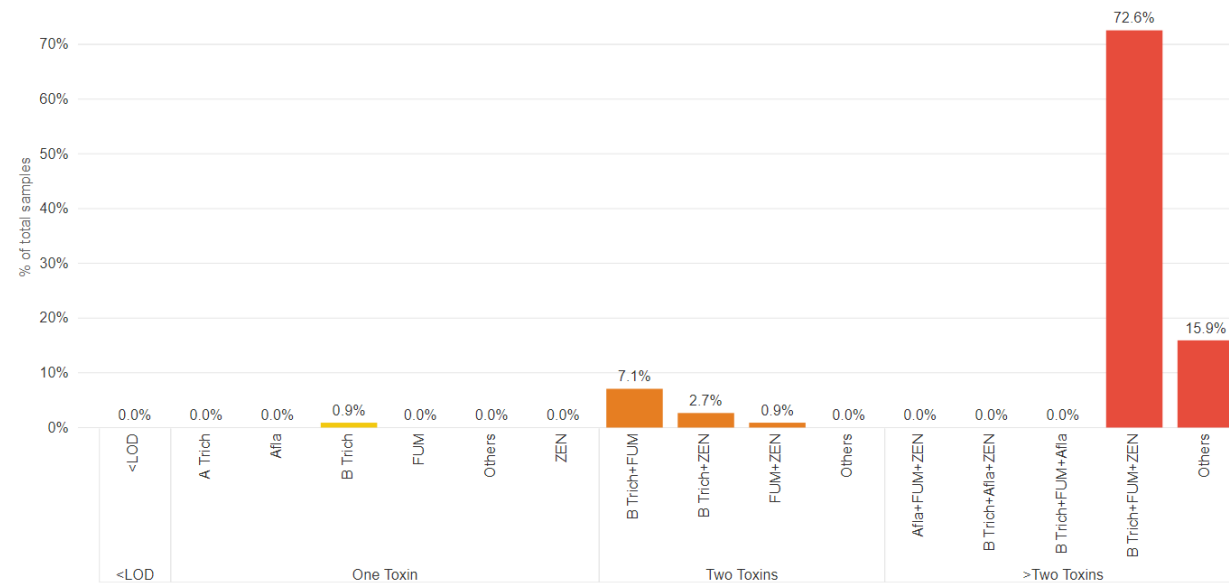
# Co-occurrence 2019 vs. 2020 in USA



2019



2020

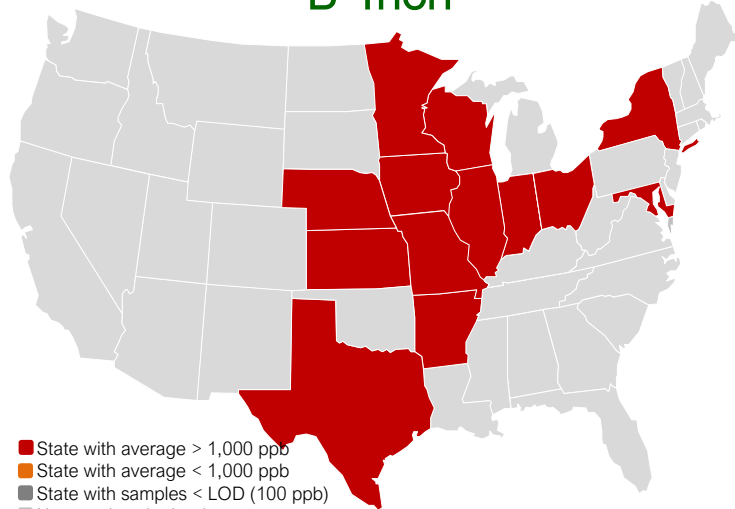




# 2020 Corn By-products Risk by State



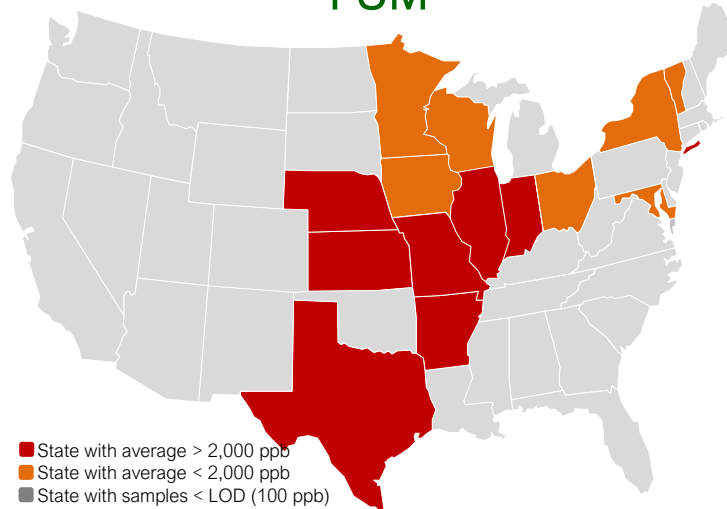
## B-Trich



- 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
MO	1	100%	5492
KS	1	100%	5318
NE	5	100%	3285
NY	4	100%	3212
WI	32	100%	2930
MD	1	100%	2717
IN	1	100%	2577
MN	6	100%	2567
AR	1	100%	2472
IL	2	100%	1963
IA	37	97%	1650
OH	1	100%	1273
TX	2	100%	1100
VT	1	100%	174

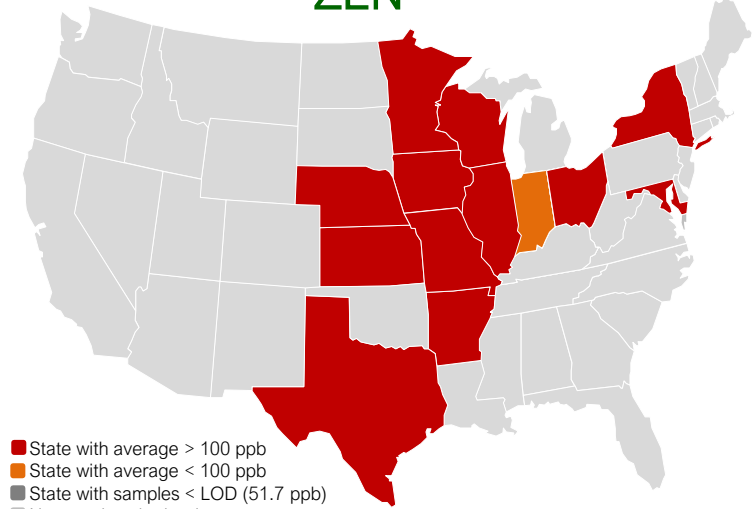
## FUM



- 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
AR	1	100%	19200
KS	1	100%	14200
NE	5	100%	5126
TX	2	50%	3600
IL	2	100%	3100
IN	1	100%	3000
MO	1	100%	2800
IA	37	100%	1768
NY	4	100%	1550
MD	1	100%	900
WI	32	91%	897
OH	1	100%	800
MN	6	67%	325
VT	1	100%	200

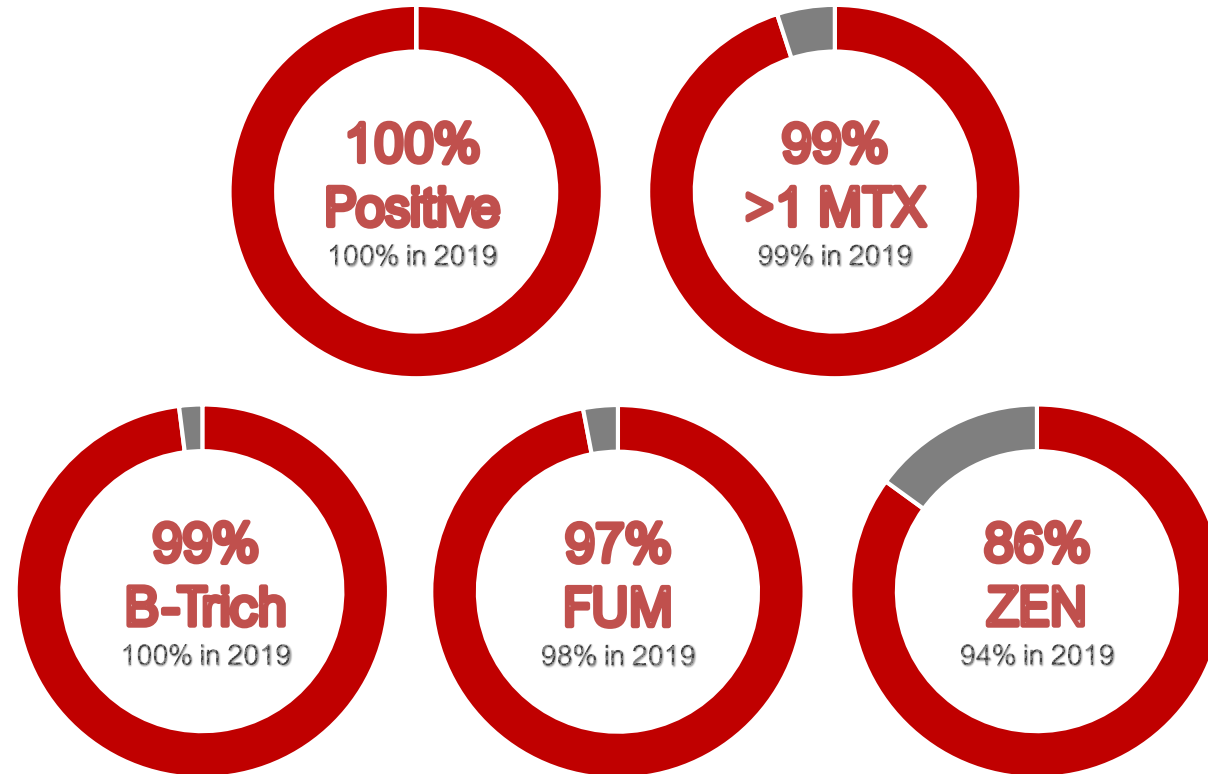
## ZEN



- 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
MO	1	100%	1461
AR	1	100%	932
KS	1	100%	816
NE	5	80%	609
WI	32	94%	464
MN	6	83%	343
IA	37	81%	291
NY	4	100%	273
MD	1	100%	269
TX	2	50%	212
IL	2	100%	185
OH	1	100%	163
IN	1	100%	74

# Mycotoxin Survey Summary - 2020 US Corn By-products



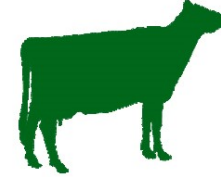
Forecasted risk for livestock production



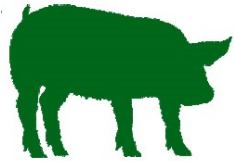
# Questions?



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