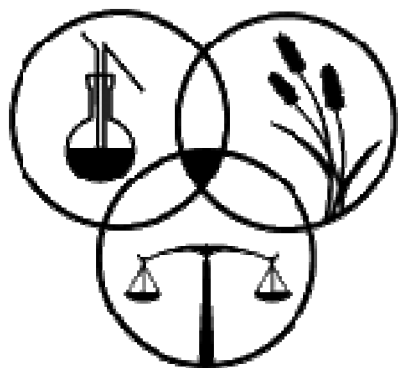




2014 AAFCO Check Sample Mycotoxins Program

**Samples Engineered to Contain Relevant
Concentrations of Significant Mycotoxins.**

The Samples

Source the base feed.



Materials thoroughly
processed with regard to
particle size and blending.



70,000 lb

Masters Collection

- Carefully sourced feeds naturally contaminated with Mycotoxins.
- Incubated to raise concentration.

- Homogenous Samples for distribution.
- Certificate of Analysis and homogeneity data.



In Sacramento Last Summer: I reported on Sample 201461, Poultry Feed. Our First Sample!

Two More Samples Completed Last Year:

- 201462, Swine Feed (Issue Date: August 31st)
- 201463, Cattle Feed (Issue Date: October 31st)

All 3 Samples Reported:

- Using a Reference Lab Assigned Value for **Measure of Location**
- Horwitz %RSD – **Measure of Dispersion**

We will talk about the “Learning Curve”



3 Samples so Far in 2014

Number of Labs Participating



Code	Analyte (ppb)	Poultry Feed 201461 (23 Labs)	Swine Feed 201462 (25 Labs)	Cattle Feed 201463 (26 Labs)
600	Total Aflatoxin	17	20	23
601	AB1	8	11	7
602	AB2	8	10	7
603	AG1	7	11	7
604	AG2	7	9	7
610	Deoxynivalenol	17	20	10
620	Total Fumonisin	13	13	14
621	FB1	8	5	6
622	FB2	8	5	6
623	FB3	3	2	3
630	Ochratoxin A	9	13	15
640	T-2	8	9	9
650	Zearalenone	14	16	18



3 Samples so Far in 2014

Assigned Values (Reference Lab)



Code	Analyte (ppb)	Poultry Feed 201461 (23 Labs)	Swine Feed 201462 (25 Labs)	Cattle Feed 201463 (26 Labs)
600	Total Aflatoxin	20.1	21.5	42.6
601	AB1	18.5	20.0	40.2
602	AB2	1.6	1.5	1.7
603	AG1	ND (0.5)	ND (0.5)	0.7
604	AG2	ND (0.5)	ND (0.5)	ND (0.5)
610	Deoxynivalenol	1,200	830	2,700
620	Total Fumonisin	1,900	2,100	1,800
621	FB1	1,300	1,500	1,400
622	FB2	400	400	270
623	FB3	200	200	140
630	Ochratoxin A	44.0	85.7	188.9
640	T-2	236.8	46.9	244.6
650	Zearalenone	242.3	183.9	250.6

Tracking Z Scores:

Reference Lab vs
Participant Consensus

Measure of Location X_A

$$Z = \frac{X_{LAB} - X_A}{\sigma_{ffp}}$$

Horwitz Used as the
Measure of Dispersion
 σ_{ffp} in Both Cases

Sample 201461 (218 Detects)		
	Reference	Consensus
Compliant Z	68.8%	67.9%
Warning Z	12.4%	12.8%
Actionable Z	18.8%	19.3%
Sample 201462 (237 Detects)		
	Reference	Consensus
Compliant Z	69.6%	72.6%
Warning Z	13.5%	13.1%
Actionable Z	16.9%	14.3%
Sample 201463 (252 Detects)		
	Reference	Consensus
Compliant Z	55.2%	68.7%
Warning Z	17.1%	10.3%
Actionable Z	27.8%	21.0%

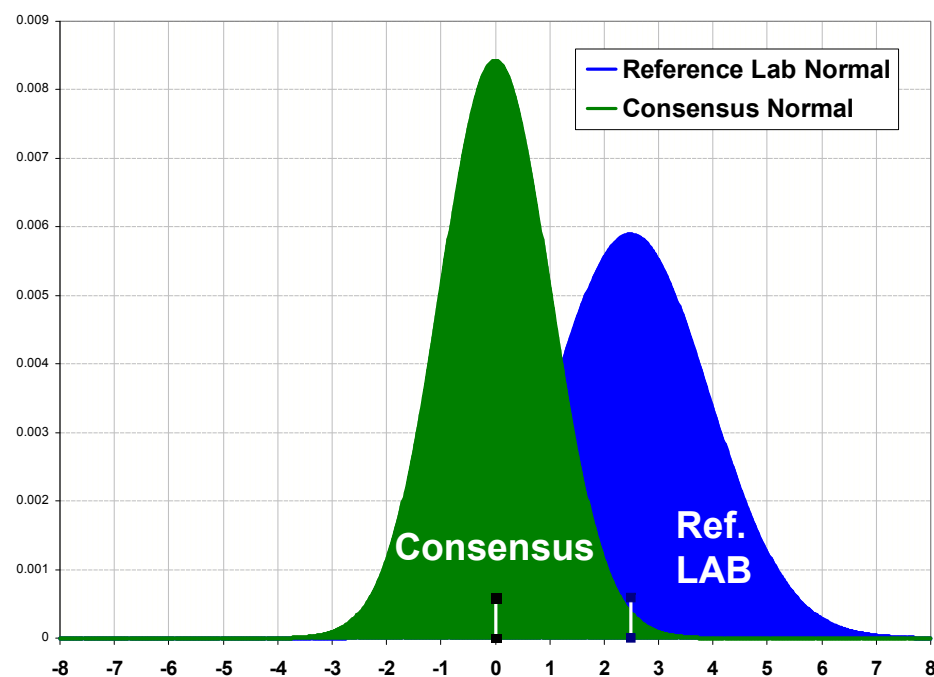
Sample 201463 Cattle Feed

Detail Tracking Z Scores For The Mycotoxins: Reference Lab vs Participant Consensus, Measure of Location

		Participant Consensus				Reference Lab			
	Detects	Value	Compliant	Warning	Actionable	Value	Compliant	Warning	Actionable
Total Aflatoxin	46	36	91.3%	4.3%	4.3%	43	89.1%	8.7%	2.2%
AB1	14	34	85.7%	0.0%	14.3%	40	85.7%	0.0%	14.3%
AB2	12	1.9	83.3%	16.7%	0.0%	1.7	75.0%	16.7%	8.3%
AG1	2		100.0%	0.0%	0.0%	1	100.0%	0.0%	0.0%
AG2	0					ND (0.5)			
Deoxynivalenol	44	2,114	56.8%	9.1%	34.1%	2,700	52.3%	13.6%	34.1%
Total Fumonisin	28	2,428	60.7%	10.7%	28.6%	1,800	32.1%	10.7%	57.1%
FB1	12	1,860	75.0%	16.7%	8.3%	1,400	66.7%	0.0%	33.3%
FB2	12	560	83.3%	16.7%	0.0%	270	0.0%	33.3%	66.7%
FB3	6	279	83.3%	16.7%	0.0%	140	33.3%	0.0%	66.7%
Ochratoxin A	30	162	53.3%	13.3%	33.3%	189	46.7%	23.3%	30.0%
T-2	14	161	42.9%	14.3%	42.9%	245	28.6%	28.6%	42.9%
Zearalenone	32	216	59.4%	12.5%	28.1%	251	46.9%	40.6%	12.5%

Let's Look at Some Data Distribution Charts For Sample 201463, Cattle Feed

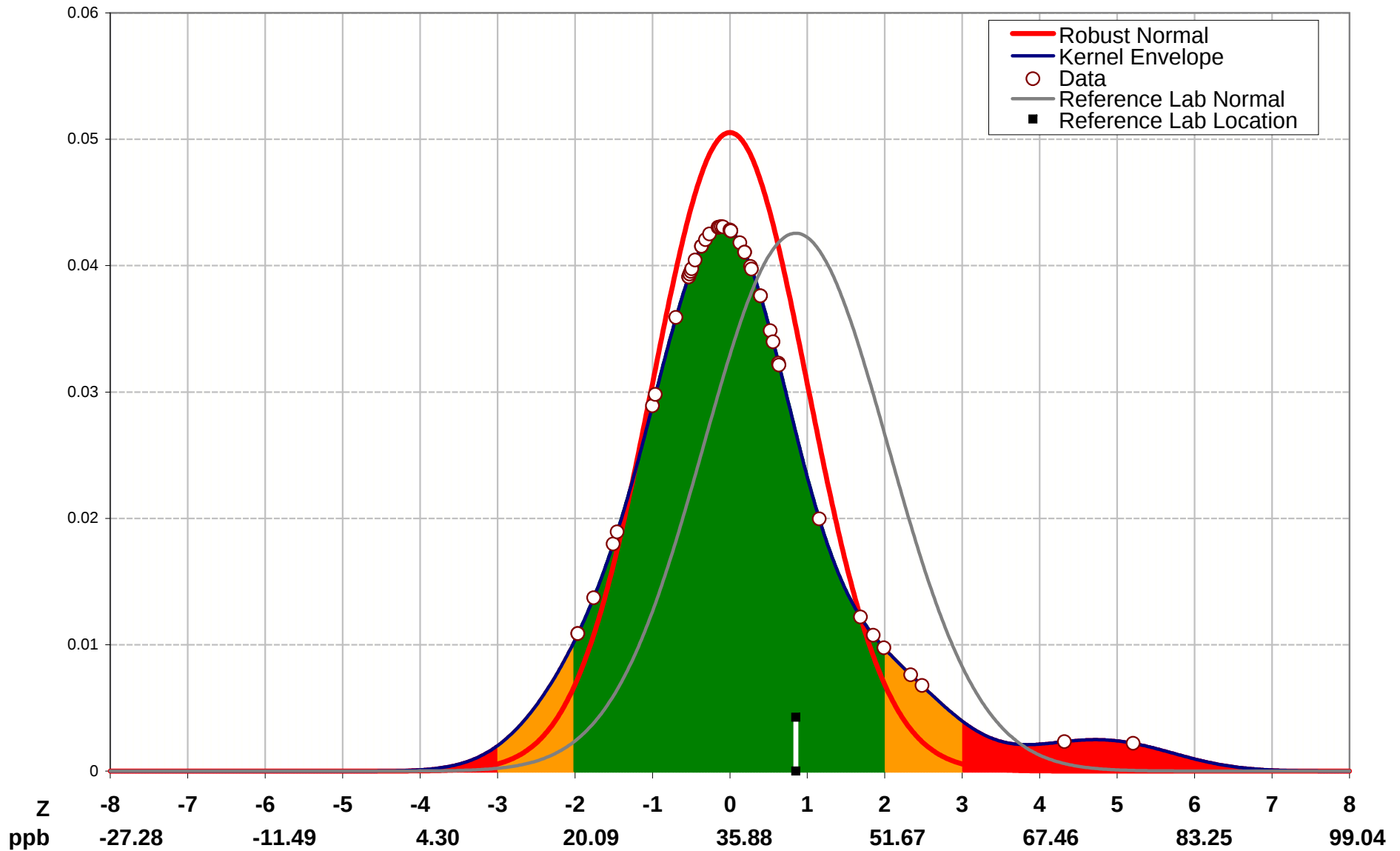
Reference Lab vs Participant Consensus
Compare Measure of Location
Relative to Data Detects



Total Aflatoxin (ppb) Code: 600 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 35.884 (ppb)

Horwitz SD 7.90 (ppb)

Reference Lab 42.600 (ppb)

Horwitz SD 9.37 (ppb)

Methods Used

Kernel Bandwidth 5.92 (ppb)

Number of Non-Detects 0

Number of Detects 46

Participating Labs 18

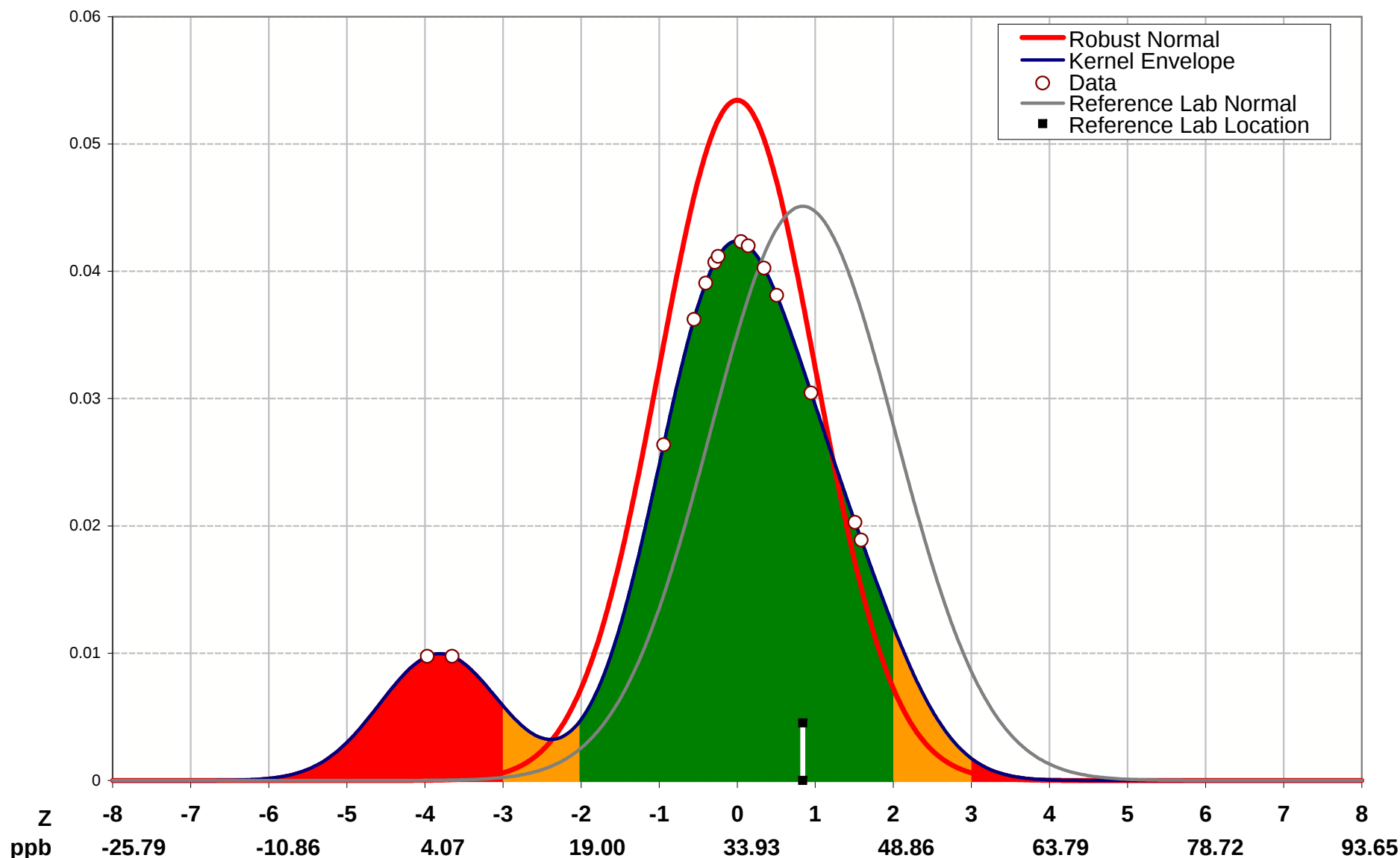
Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

AB1 (ppb) Code: 601 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 33.932 (ppb)

Horwitz SD 7.47 (ppb)

Reference Lab 40.200 (ppb)

Horwitz SD 8.84 (ppb)

Methods Used

Kernel Bandwidth 5.60 (ppb)

Number of Non-Detects 0

Number of Detects 14

Participating Labs 7

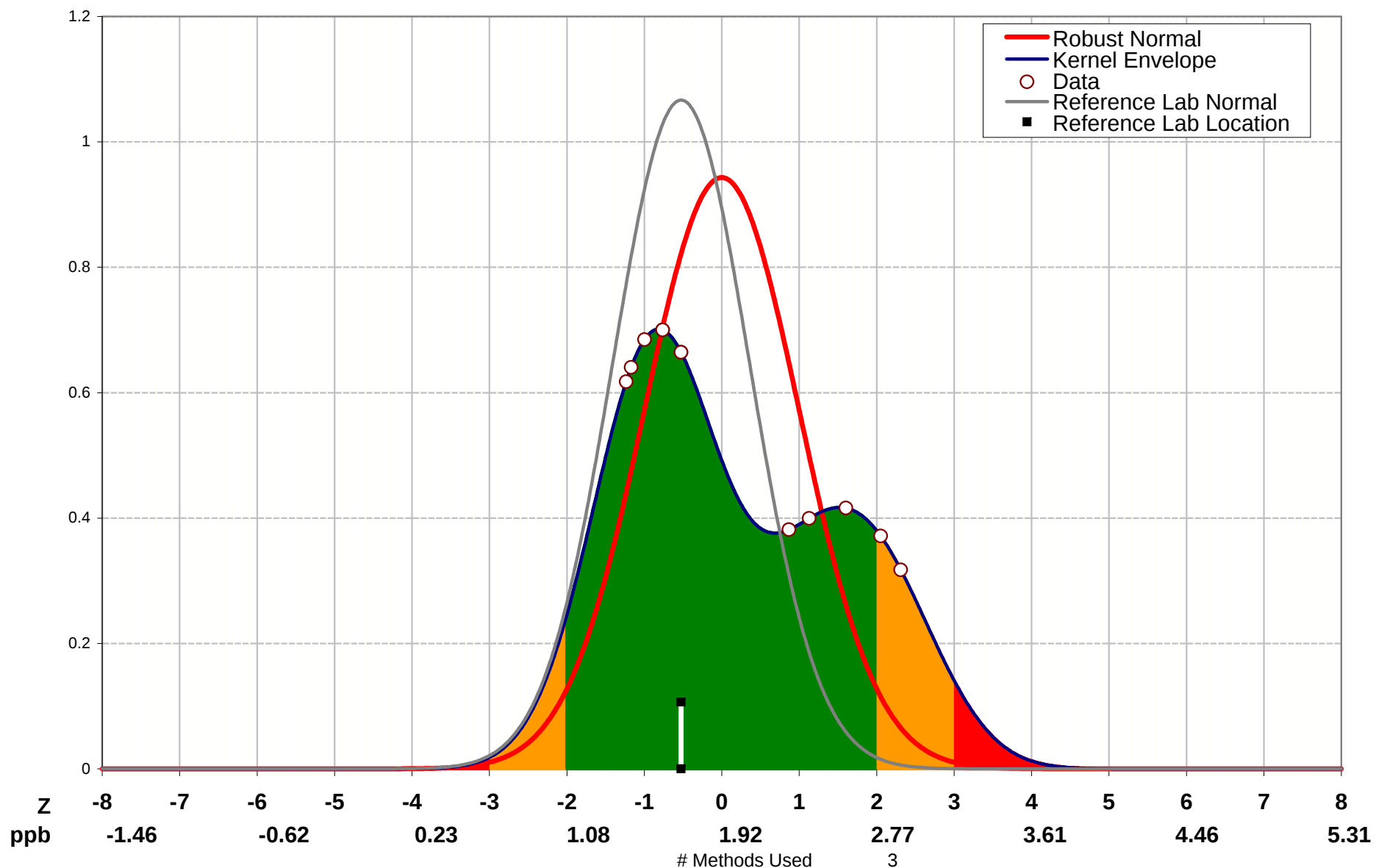
Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

AB2 (ppb) Code: 602 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 1.922 (ppb)

Horwitz SD 0.42 (ppb)

Reference Lab 1.700 (ppb)

Horwitz SD 0.37 (ppb)

Methods Used

Kernel Bandwidth 0.32 (ppb)

Number of Non-Detects 2

Number of Detects 12

Participating Labs 7

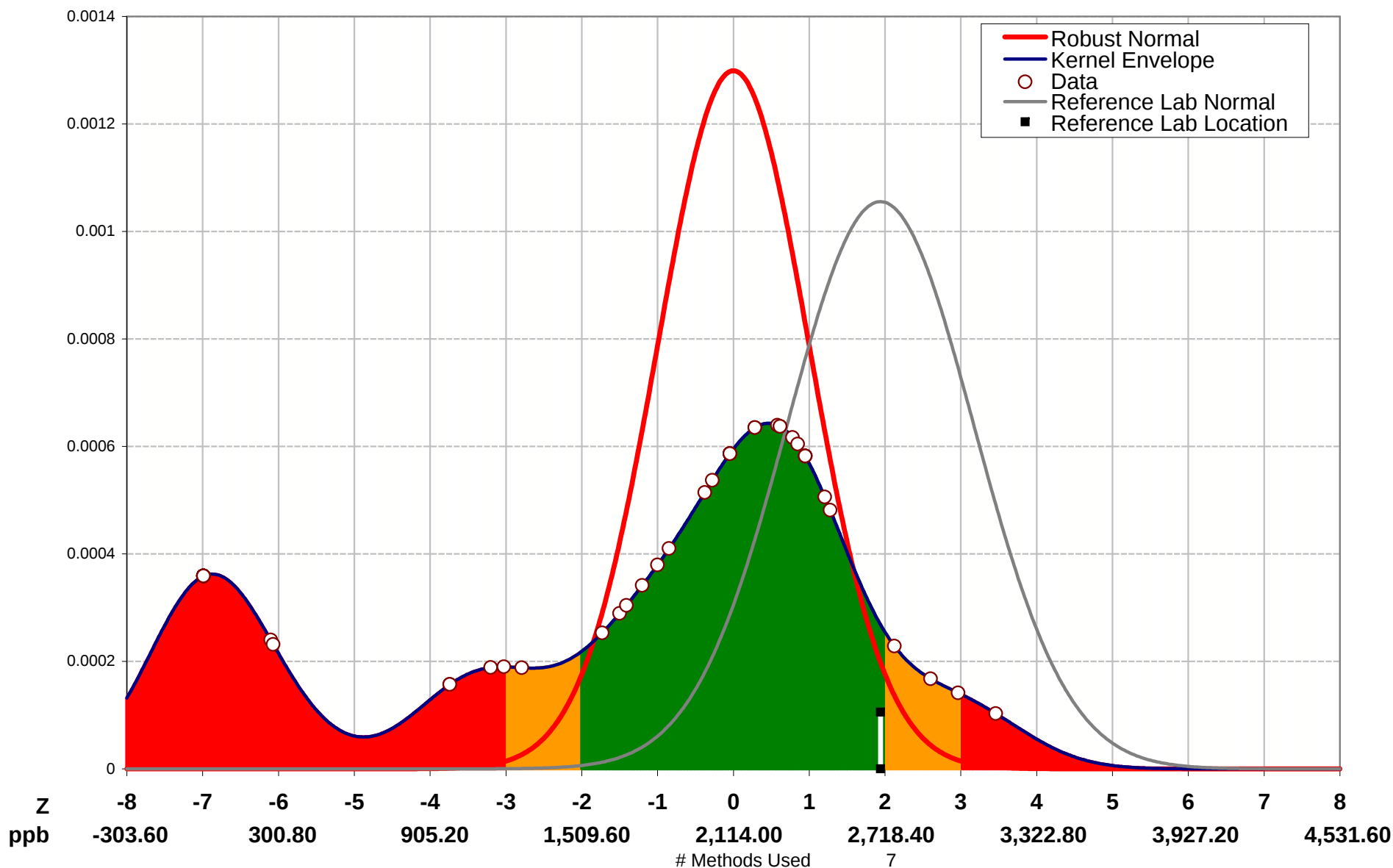
Unique LOD's at: 1 (ppb)

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

Deoxynivalenol (ppb) Code: 610 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 2114 (ppb)

Horwitz SD 302.20 (ppb)

Reference Lab 2700 (ppb)

Horwitz SD 371.94 (ppb)

Kernel Bandwidth 226.65 (ppb)

Number of Non-Detects 0

Number of Detects 44

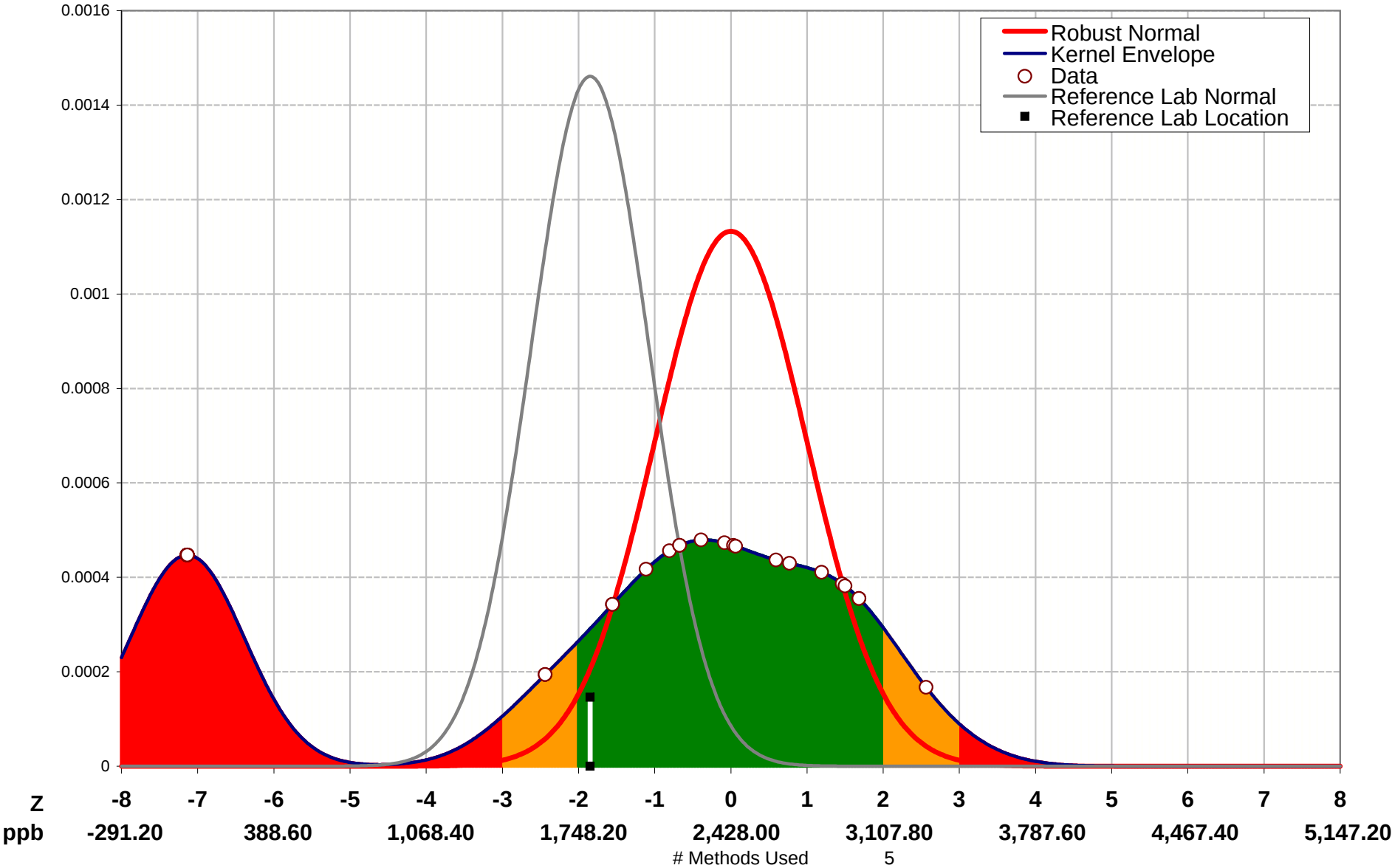
Participating Labs 22

Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

Total Fumonisin (ppb) Code: 620 - In Sample # 201463, Cattle Feed
Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 2428 (ppb)

Horwitz SD 339.90 (ppb)

Reference Lab 1800 (ppb)

Horwitz SD 263.56 (ppb)

Methods Used 5
Kernel Bandwidth 254.93 (ppb)
Number of Non-Detects 0
Number of Detects 28
Participating Labs 14

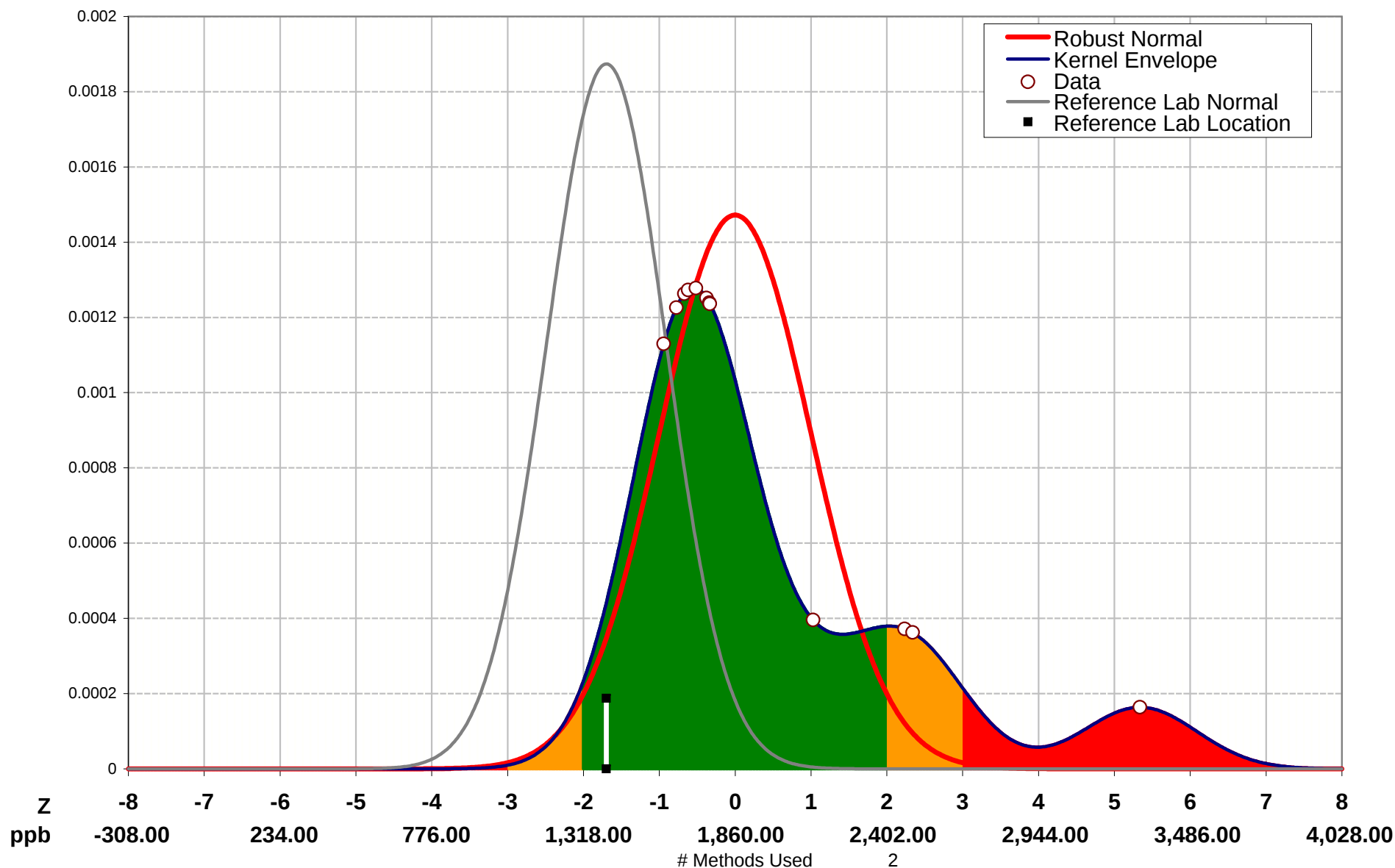
Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

FB1 (ppb) Code: 621 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 1860 (ppb)

Horwitz SD 271.00 (ppb)

Reference Lab 1400 (ppb)

Horwitz SD 212.90 (ppb)

Number of Detects 12

Participating Labs 6

Kernel Bandwidth 203.25 (ppb)

Number of Non-Detects 0

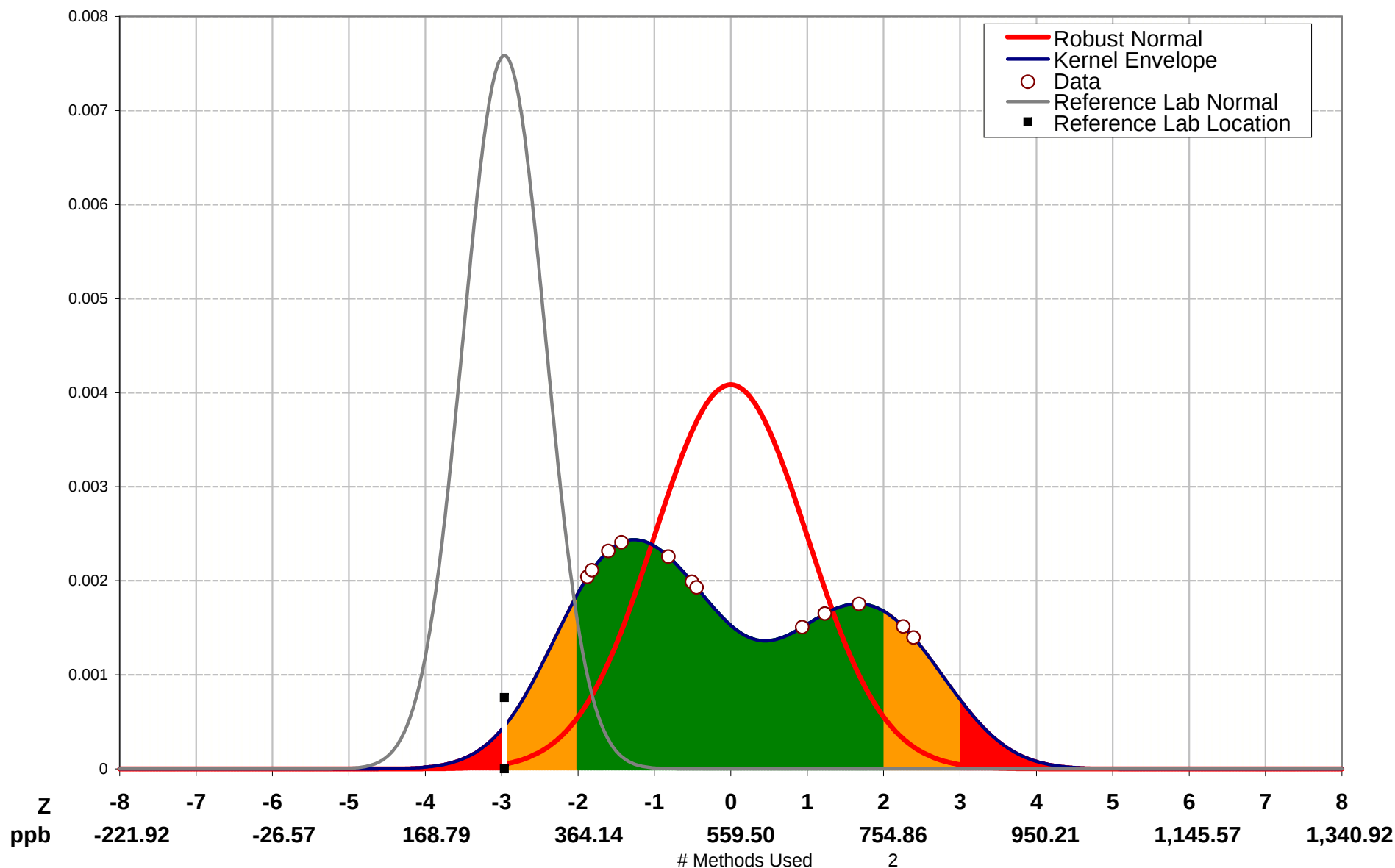
Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

FB2 (ppb) Code: 622 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 559.5 (ppb)

Horwitz SD 97.68 (ppb)

Reference Lab 270.0 (ppb)

Horwitz SD 52.60 (ppb)

Number of Detects 12
Participating Labs 6

Methods Used

2

Kernel Bandwidth 73.26 (ppb)

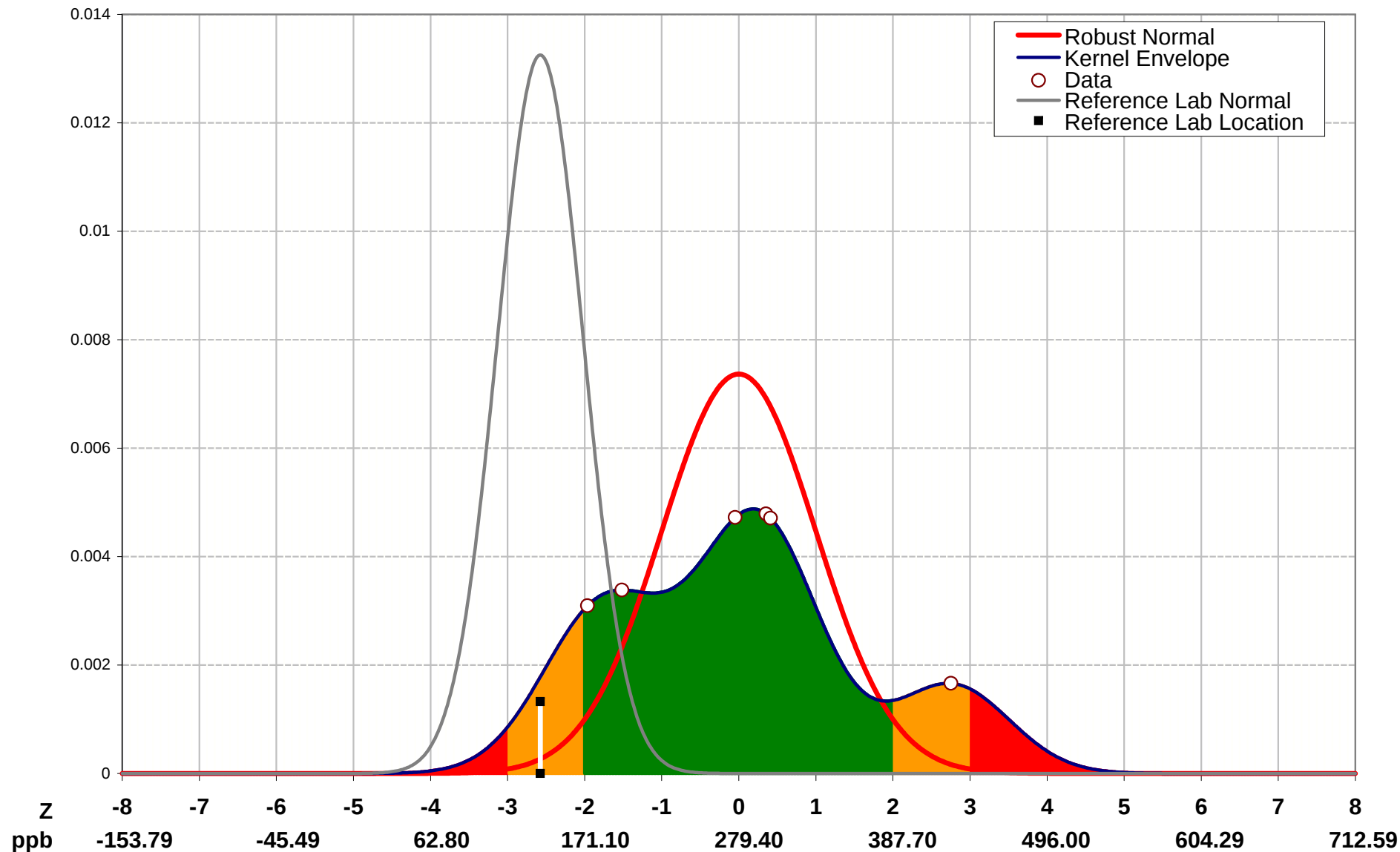
Number of Non-Detects 0

Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

FB3 (ppb) Code: 623 - In Sample # 201463, Cattle Feed
Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



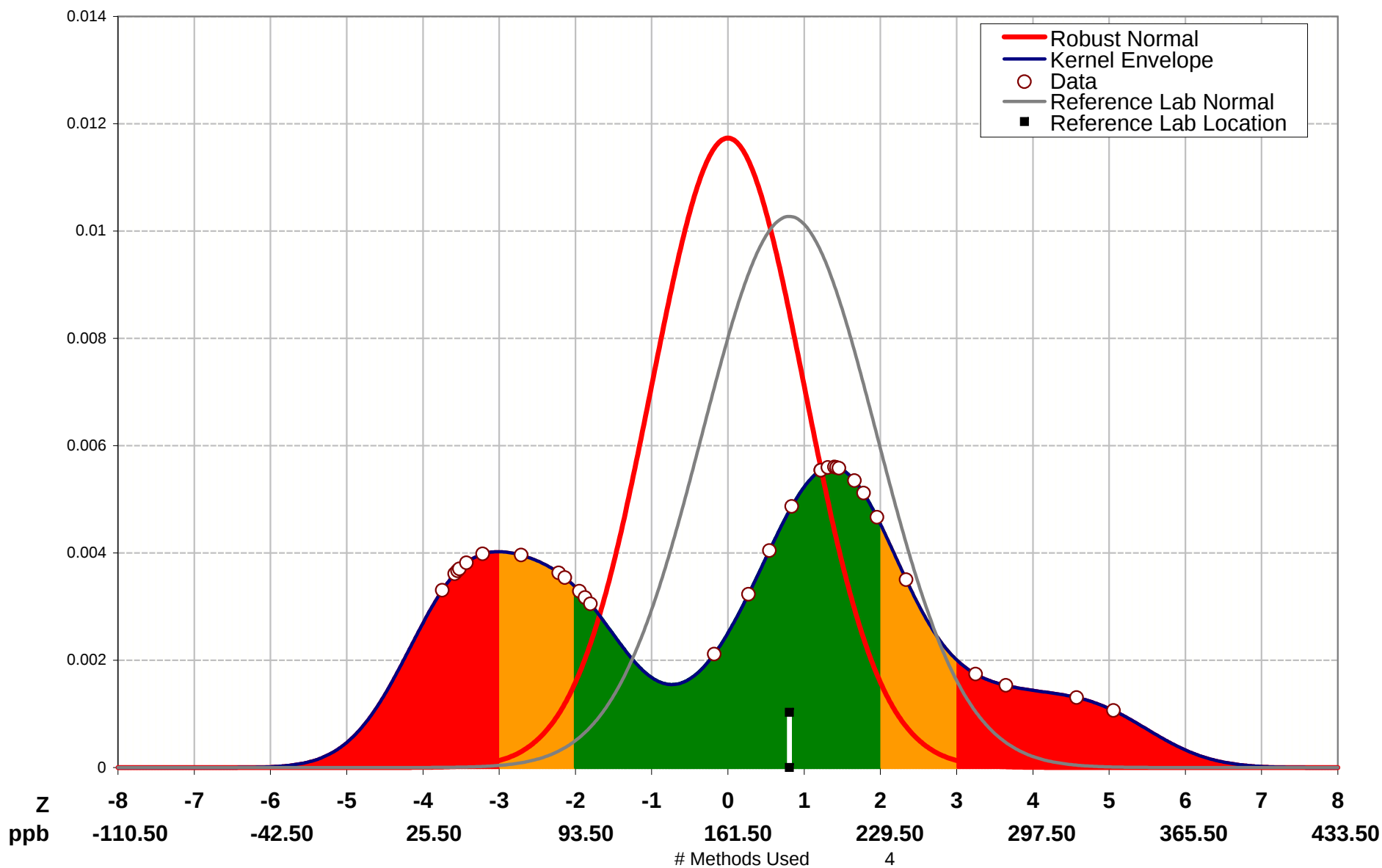
Assigned Value 279.4 (ppb)		# Methods Used	1	Unique LOD's at:	
Horwitz SD	54.15 (ppb)	Kernel Bandwidth	40.61 (ppb)		
Reference Lab 140.0 (ppb)		Number of Non-Detects	0		
Horwitz SD	30.11 (ppb)	Number of Detects	6		
		Participating Labs	3		

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

Ochratoxin A (ppb) Code: 630 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 161.5 (ppb)

Horwitz SD 34.00 (ppb)

Reference Lab 188.9 (ppb)

Horwitz SD 38.83 (ppb)

Methods Used 4

Kernel Bandwidth 25.50 (ppb)

Number of Non-Detects 0

Number of Detects 30

Participating Labs 14

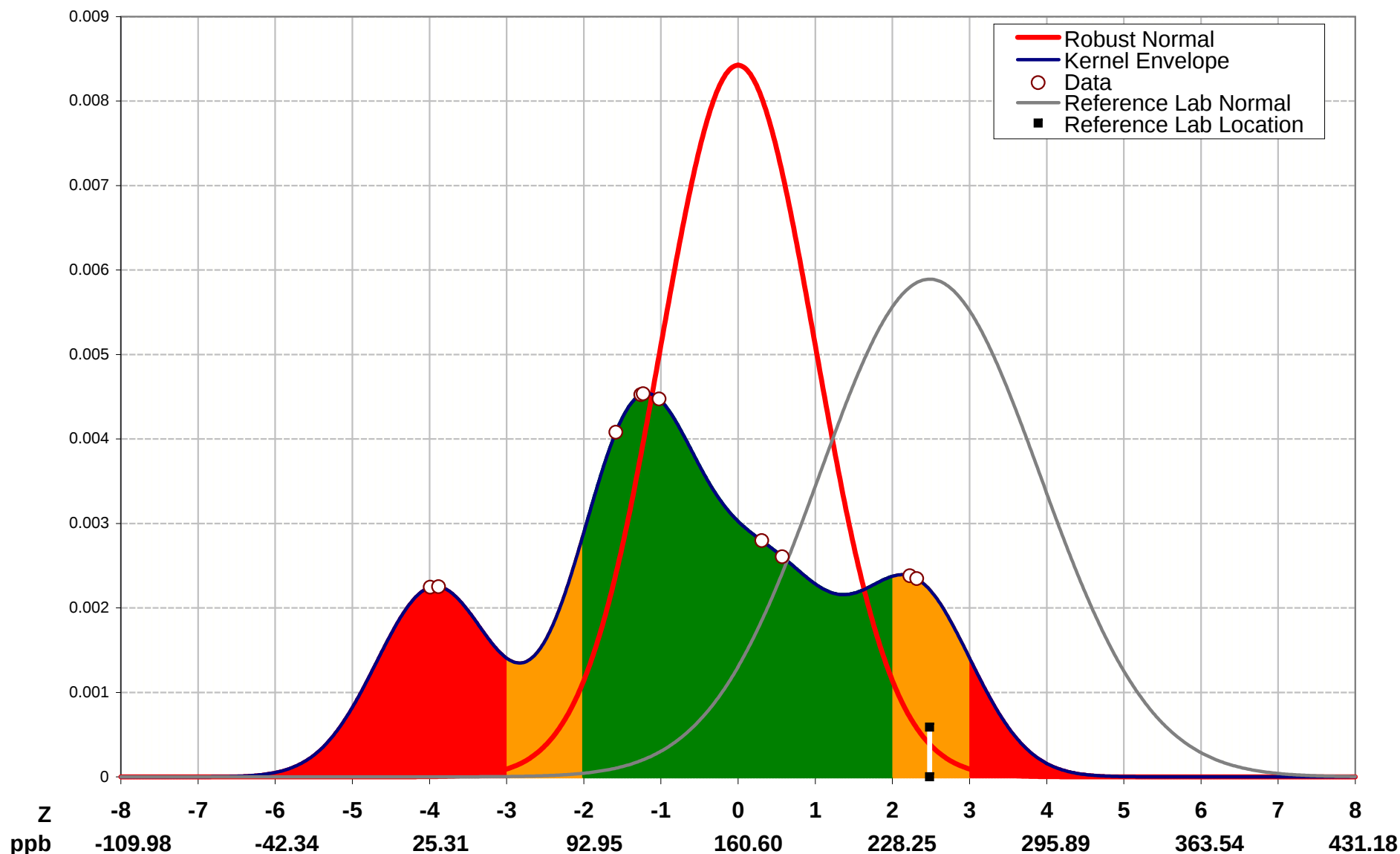
Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

T-2 (ppb) Code: 640 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 160.6 (ppb)

Horwitz SD 33.82 (ppb)

Reference Lab 244.6 (ppb)

Horwitz SD 48.36 (ppb)

Methods Used 3

Kernel Bandwidth 25.37 (ppb)

Number of Non-Detects 4

Number of Detects 14

Participating Labs 9

Unique LOD's at: 200 (ppb)

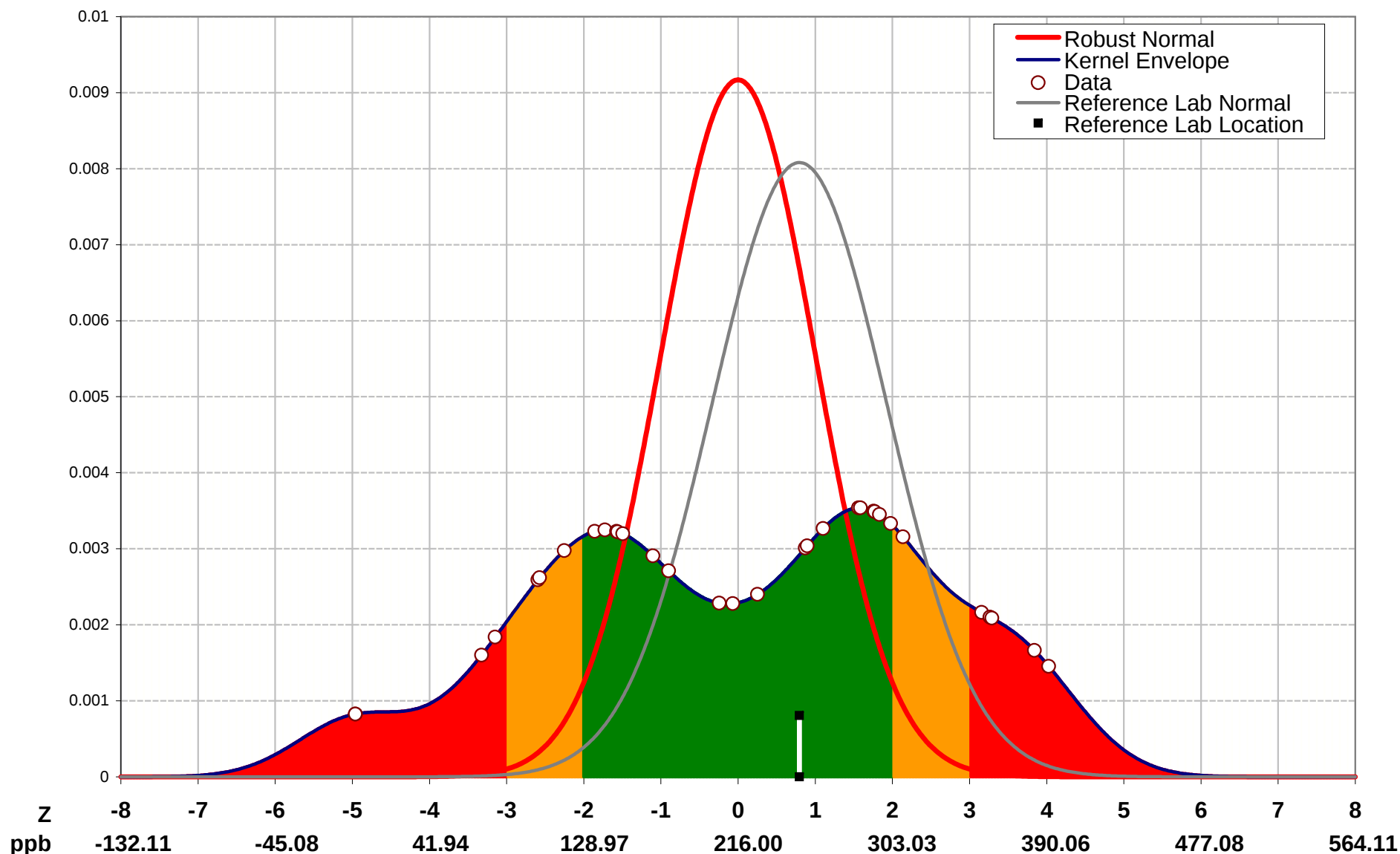
1000 (ppb)

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

Zearalenone (ppb) Code: 650 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 216 (ppb)

Horwitz SD 43.51 (ppb)

Reference Lab 251 (ppb)

Horwitz SD 49.37 (ppb)

Methods Used 5

Kernel Bandwidth 32.64 (ppb)

Number of Non-Detects 4

Number of Detects 32

Participating Labs 18

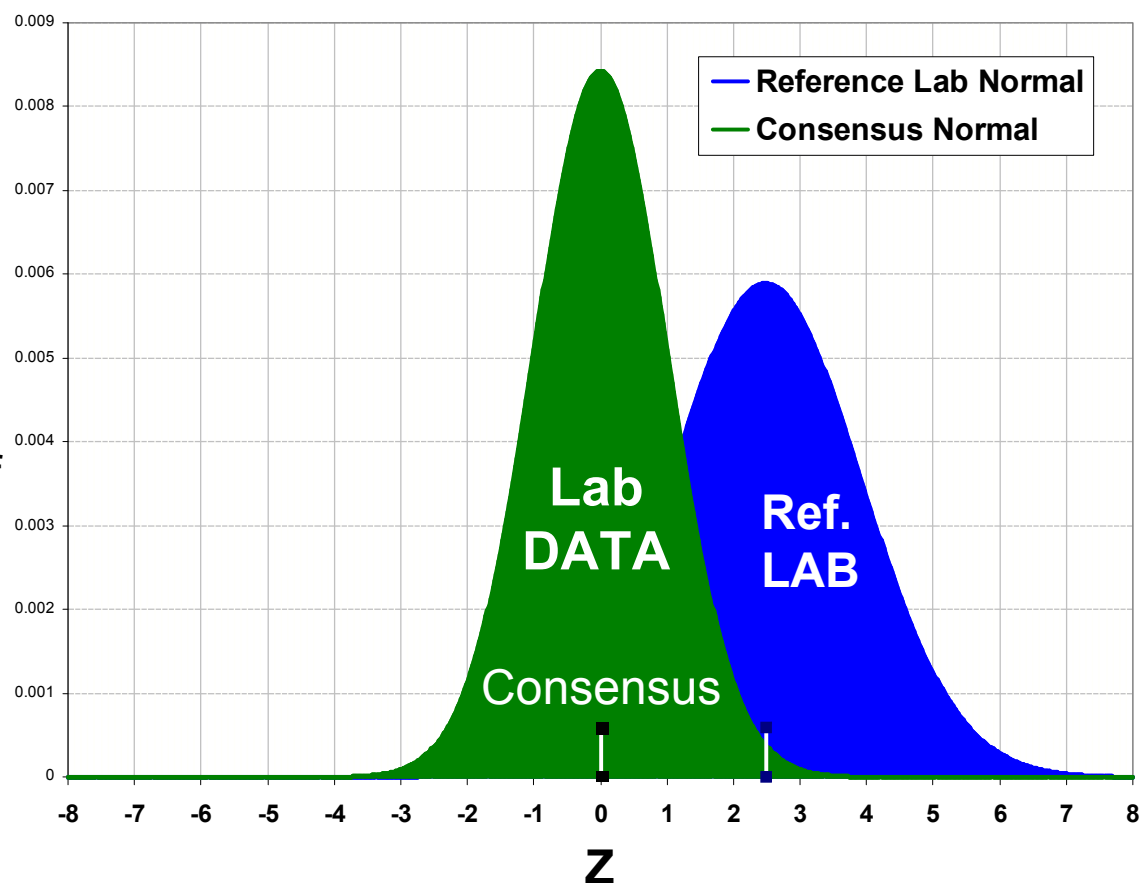
Unique LOD's at: 0 (ppb)

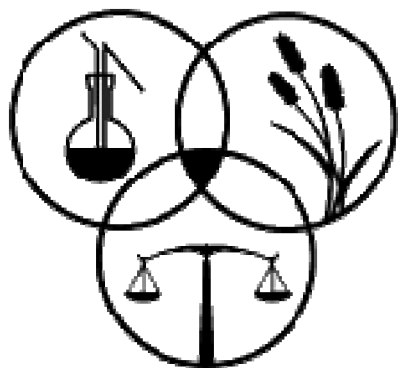
500 (ppb)

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.

Now the Question is: “What do we want our Z Score to tell us?”

1. Should we be assessed against a single Reference Lab Assigned Value?
2. Should we be assessed against our best estimate of the center of all the data?





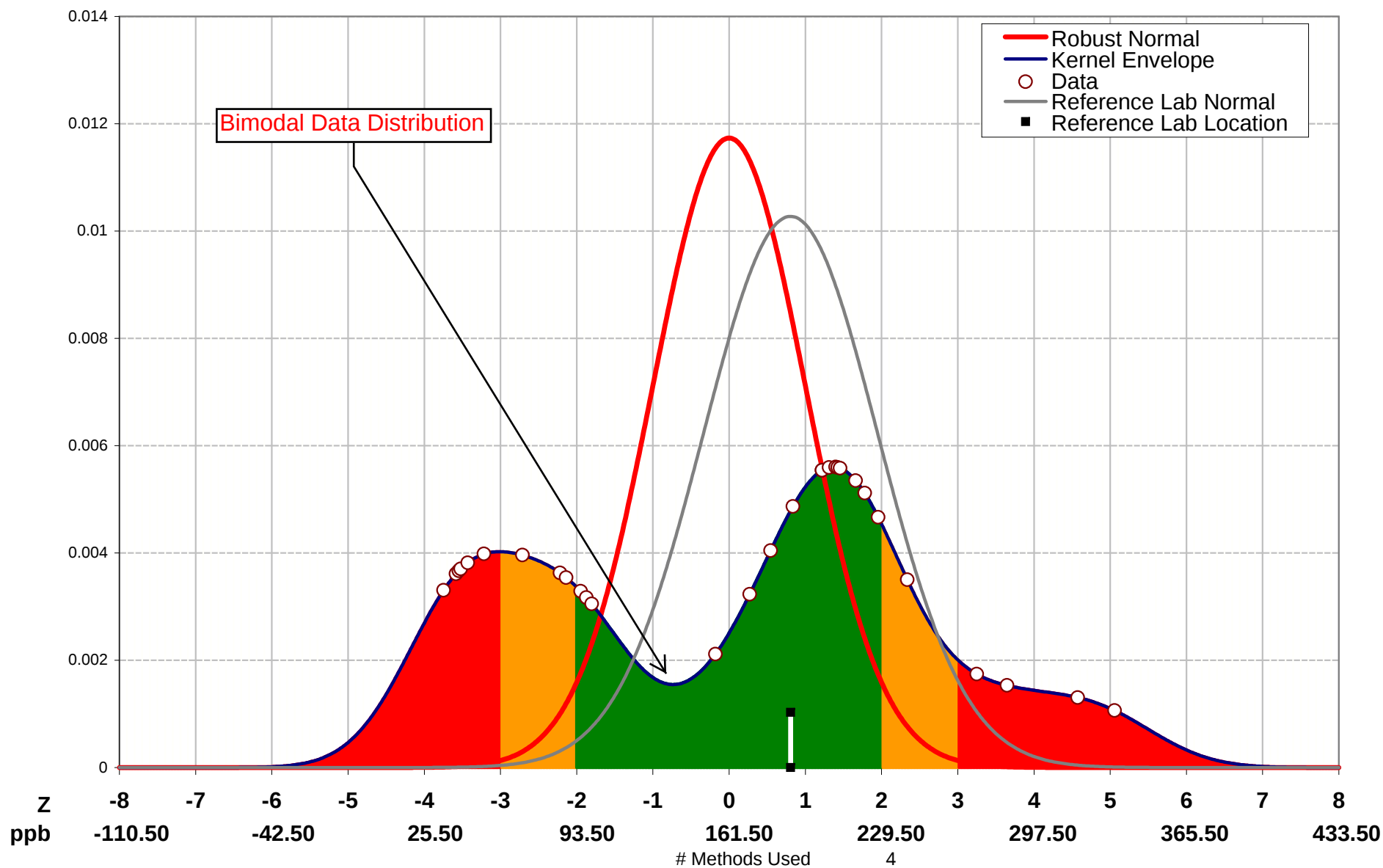
2014 Mycotoxin CSP

Ochratoxin Methods (Bias?)

Ochratoxin A (ppb) Code: 630 - In Sample # 201463, Cattle Feed

Kernel Density Envelope Detected Values Relative to Normal Horwitz Curve

Issue Date: 10/31/2014



Assigned Value 161.5 (ppb)

Horwitz SD 34.00 (ppb)

Reference Lab 188.9 (ppb)

Horwitz SD 38.83 (ppb)

Kernel Bandwidth 25.50 (ppb)

Number of Non-Detects 0

Number of Detects 30

Participating Labs 14

Unique LOD's at:

Note: Area Under the Kernel Envelope is Identical to Area Under Horwitz Normal Curve within the chart.



AAFCO
Check Sample Program



Mycotoxin Proficiency Testing
Analytes for Sample # 201463 Cattle Feed

Issue Date: 10/31/2014

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0660	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	39.7	34.1	Y	Y		100%	-3.67	161.5	34
0958	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	41	41.8	Y	Y		100%	-3.53	161.5	34
0959	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	52.2	69.3	Y	Y		100%	-2.96	161.5	34
0957	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	95.3	44.9	Y	Y		100%	-2.69	161.5	34
2050	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	86.1	88.8	Y	Y		100%	-2.18	161.5	34
0964	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	97.8	100.2	Y	Y		100%	-1.84	161.5	34
2060	630.23	Ochratoxin A (ppb)	LC-MS/MS	155.4	170.7	Y	Y		100%	0.04	161.5	34
2033	630.23	Ochratoxin A (ppb)	LC-MS/MS	180	190	Y	Y		100%	0.69	161.5	34
0003	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	203	203	Y	Y		100%	1.22	161.5	34
0001	630.23	Ochratoxin A (ppb)	LC-MS/MS	211	210	Y	Y		100%	1.44	161.5	34
0227	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	222	209	Y	Y		100%	1.59	161.5	34
0918	630.23	Ochratoxin A (ppb)	LC-MS/MS	228	218	Y	Y		100%	1.81	161.5	34
0553	630.23	Ochratoxin A (ppb)	LC-MS/MS	206.1	241	Y	Y		100%	1.82	161.5	34
2023	630.20	Ochratoxin A (ppb)	LC	317	272	Y	Y		100%	3.91	161.5	34
0964	630.21	Ochratoxin A (ppb)	LC post-col photochem der. FI	285.5	333.5	Y	Y		100%	4.35	161.5	34



AAFCO
Check Sample Program



Mycotoxin Proficiency Testing
Analytes for Sample # 201462 Swine Feed

Issue Date: 08/31/2014

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0660	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	23.9	32.7	Y	Y		100%	-2.64	67.646	14.882
0958	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	28.6	32.6	Y	Y		100%	-2.49	67.646	14.882
0957	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	32.4	30.6	Y	Y		100%	-2.43	67.646	14.882
0959	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	42.7	38.6	Y	Y		100%	-1.81	67.646	14.882
2033	630.23	Ochratoxin A (ppb)	LC-MS/MS	42.25	43.55	Y	Y		100%	-1.66	67.646	14.882
0001	630.23	Ochratoxin A (ppb)	LC-MS/MS	63.44	60.27	Y	Y		100%	-0.39	67.646	14.882
0964	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	64.9	75.2	Y	Y		100%	0.16	67.646	14.882
2060	630.23	Ochratoxin A (ppb)	LC-MS/MS	80.7	77.1	Y	Y		100%	0.76	67.646	14.882
0218	630.23	Ochratoxin A (ppb)	LC-MS/MS	83	87	Y	Y		100%	1.17	67.646	14.882
0918	630.23	Ochratoxin A (ppb)	LC-MS/MS	96.9	89.5	Y	Y		100%	1.72	67.646	14.882
2023	630.20	Ochratoxin A (ppb)	LC	154	117	Y	Y		100%	4.56	67.646	14.882
0964	630.21	Ochratoxin A (ppb)	LC post-col photochem der. FI	128	187	Y	Y		100%	6.04	67.646	14.882
0227	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	195	161	Y	Y		100%	7.42	67.646	14.882



AAFCO
Check Sample Program

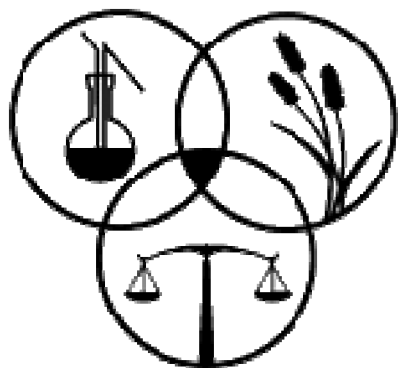


Mycotoxin Proficiency Testing

Issue Date: 05/31/2014

Analytes for Sample # 201461 Poultry Feed

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0660	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	22.9	24.4	Y	Y		100%	-1.53	35.646	7.842
0964	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	26.1	27.3	Y	Y		100%	-1.14	35.646	7.842
0957	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	29.6	25.9	Y	Y		100%	-1.01	35.646	7.842
2060	630.23	Ochratoxin A (ppb)	LC-MS/MS	27.757	30.97	Y	Y		100%	-0.80	35.646	7.842
2033	630.23	Ochratoxin A (ppb)	LC-MS/MS	36	39.21	Y	Y		100%	0.25	35.646	7.842
0918	630.23	Ochratoxin A (ppb)	LC-MS/MS	41.7	40.5	Y	Y		100%	0.70	35.646	7.842
0218	630.23	Ochratoxin A (ppb)	LC-MS/MS	49.38	49.77	Y	Y		100%	1.78	35.646	7.842
0553	630.23	Ochratoxin A (ppb)	LC-MS/MS	47.96	51.28	Y	Y		100%	1.78	35.646	7.842
0001	630.23	Ochratoxin A (ppb)	LC-MS/MS		51.23	N	Y	50	3.36%	1.99	35.646	7.842



2014 Mycotoxin CSP

Analyte Report Ordered by Z Score



AAFCO
Check Sample Program



Mycotoxin Proficiency Testing

Issue Date: 10/31/2014

Analytes for Sample # 201463 Cattle Feed

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0202	600.12	Total Aflatoxin (ppb)	r-Biopharm Ridascreen FAST Afla	20.4	20.4	Y	Y		100%	-1.96	35.884	7.895
0004	600.14	Total Aflatoxin (ppb)	Vicam Aflatest	24	22	Y	Y		100%	-1.63	35.884	7.895
0027	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	31.9	24.4	Y	Y		100%	-0.98	35.884	7.895
0003	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	28.3	28	Y	Y		100%	-0.98	35.884	7.895
0958	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	31.7	31.8	Y	Y		100%	-0.52	35.884	7.895
0033	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	30.4	33.4	Y	Y		100%	-0.50	35.884	7.895
0964	600.21	Total Aflatoxin (ppb)	LC post-col photochem der. FI	33.814	32.358	Y	Y		100%	-0.35	35.884	7.895
0010	600.20	Total Aflatoxin (ppb)	LC	32	36	Y	Y		100%	-0.24	35.884	7.895
0010	600.21	Total Aflatoxin (ppb)	LC post-col photochem der. FI	33	35	Y	Y		100%	-0.24	35.884	7.895
0957	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	31.7	38.1	Y	Y		100%	-0.12	35.884	7.895
0297	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	34.8	35.9	Y	Y		100%	-0.07	35.884	7.895
0227	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	36	36	Y	Y		100%	0.01	35.884	7.895
0010	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	39	33	Y	Y		100%	0.01	35.884	7.895
2050	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	37.4	35.2	Y	Y		100%	0.05	35.884	7.895
0660	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	37.4	36.9	Y	Y		100%	0.16	35.884	7.895
2033	600.24	Total Aflatoxin (ppb)	LC-MS/MS	34.7	40.3	Y	Y		100%	0.20	35.884	7.895
0964	600.01	Total Aflatoxin (ppb)	Neogen Veratox Aflatoxin	40.85	35.95	Y	Y		100%	0.32	35.884	7.895
0959	600.10	Total Aflatoxin (ppb)	TLC	40	39	Y	Y		100%	0.46	35.884	7.895
0042	600.20	Total Aflatoxin (ppb)	LC	45	38	Y	Y		100%	0.71	35.884	7.895
2072	600.99	Total Aflatoxin (ppb)	Miscellaneous technique	40.9	50.5	Y	Y		100%	1.24	35.884	7.895
0035	600.13	Total Aflatoxin (ppb)	r-Biopharm Ridascreen FAST Afla	49.2	54.328	Y	Y		100%	2.01	35.884	7.895
0035	600.20	Total Aflatoxin (ppb)	LC	51.599	55.48	Y	Y		100%	2.24	35.884	7.895
0010	600.98	Total Aflatoxin (ppb)	Other Rapid Test Kit	70	77	Y	Y		100%	4.76	35.884	7.895
0553	601.23	AB1 (ppb)	LC-MS/MS	4.31	6.67	Y	Y		100%	-3.81	33.932	7.465
0001	601.23	AB1 (ppb)	LC-MS/MS	29.8	26.9	Y	Y		100%	-0.75	33.932	7.465
0964	601.21	AB1 (ppb)	LC post-col photochem der. -FI	32.114	30.931	Y	Y		100%	-0.32	33.932	7.465
2033	601.23	AB1 (ppb)	LC-MS/MS	31.8	37.7	Y	Y		100%	0.11	33.932	7.465
2023	601.24	AB1 (ppb)	Vicam Aflatest, LC-FI	34.3	36.5	Y	Y		100%	0.20	33.932	7.465
2060	601.23	AB1 (ppb)	LC-MS/MS	41	35	Y	Y		100%	0.54	33.932	7.465
0918	601.23	AB1 (ppb)	LC-MS/MS	45.2	45.8	Y	Y		100%	1.55	33.932	7.465
0001	602.23	AB2 (ppb)	LC-MS/MS	1.6	1.4	Y	Y		100%	-1.00	1.922	0.423
2023	602.24	AB2 (ppb)	Vicam Aflatest, LC-FI	1.5	1.6	Y	Y		100%	-0.88	1.922	0.423
0964	602.21	AB2 (ppb)	LC post-col photochem der.-FI	1.7	1.427	Y	Y		100%	-0.85	1.922	0.423
2060	602.23	AB2 (ppb)	LC-MS/MS	2.4	1.7	Y	Y		100%	0.30	1.922	0.423
0918	602.23	AB2 (ppb)	LC-MS/MS	2.79	2.29	Y	Y		100%	1.46	1.922	0.423

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
2033	602.23	AB2 (ppb)	LC-MS/MS	2.9	2.6	Y	Y		100%	1.96	1.922	0.423
0553	602.23	AB2 (ppb)	LC-MS/MS			N	N	1	98.54%	NoZ	1.922	0.423
0918	603.23	AG1 (ppb)	LC-MS/MS	0.8	1	Y	Y		100%	1.30	0.7	0.154
0964	603.21	AG1 (ppb)	LC post-col photochem der. -FI			N	N	1	2.57%	NoZ	0.7	0.154
0001	603.23	AG1 (ppb)	LC-MS/MS			N	N	0.5	90.30%	NoZ	0.7	0.154
0553	603.23	AG1 (ppb)	LC-MS/MS			N	N	1	2.57%	NoZ	0.7	0.154
2033	603.23	AG1 (ppb)	LC-MS/MS			N	N	1	2.57%	NoZ	0.7	0.154
2060	603.23	AG1 (ppb)	LC-MS/MS			N	N	1.1	0.47%	NoZ	0.7	0.154
2023	603.24	AG1 (ppb)	Vicam Aflatest, LC-FI			N	N	0.6	74.19%	NoZ	0.7	0.154
0964	604.21	AG2 (ppb)	LC post-col photochem der. -FI			N	N	0.44			ND (0.5)	
0001	604.23	AG2 (ppb)	LC-MS/MS			N	N	0.5			ND (0.5)	
0553	604.23	AG2 (ppb)	LC-MS/MS			N	N	1			ND (0.5)	
0918	604.23	AG2 (ppb)	LC-MS/MS			N	N	0.3			ND (0.5)	
2033	604.23	AG2 (ppb)	LC-MS/MS			N	N	1			ND (0.5)	
2060	604.23	AG2 (ppb)	LC-MS/MS			N	N	1.6			ND (0.5)	
2023	604.24	AG2 (ppb)	Vicam Aflatest, LC-FI			N	N	0.6			ND (0.5)	
2050	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	1.6	1.7	Y	Y		100%	-6.99	2,114	302.2
0202	610.06	Deoxynivalenol (ppb)	r-Biopharm Ridascreen DON	2.1	2.1	Y	Y		100%	-6.99	2,114	302.2
0218	610.25	Deoxynivalenol (ppb)	GC-MS	2,314	2,451	Y	Y		100%	-6.99	2,114	302.2
0958	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2.5	2.4	Y	Y		100%	-6.99	2,114	302.2
0297	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	270	280	Y	Y		100%	-6.09	2,114	302.2
2023	610.20	Deoxynivalenol (ppb)	LC	984	984	Y	Y		100%	-3.74	2,114	302.2
2052	610.23	Deoxynivalenol (ppb)	LC-MS/MS	1,271	1,199	Y	Y		100%	-2.91	2,114	302.2
2060	610.23	Deoxynivalenol (ppb)	LC-MS/MS	1,147	1,751	Y	Y		100%	-2.20	2,114	302.2
0001	610.23	Deoxynivalenol (ppb)	LC-MS/MS	1,688	1,661	Y	Y		100%	-1.46	2,114	302.2
0553	610.23	Deoxynivalenol (ppb)	LC-MS/MS	1,858	1,591	Y	Y		100%	-1.29	2,114	302.2
2033	610.23	Deoxynivalenol (ppb)	LC-MS/MS	2,100	2,030	Y	Y		100%	-0.16	2,114	302.2
0964	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,300	2,000	Y	Y		100%	0.12	2,114	302.2
0003	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,300	2,100	Y	Y		100%	0.28	2,114	302.2
0918	610.23	Deoxynivalenol (ppb)	LC-MS/MS	2,100	2,370	Y	Y		100%	0.40	2,114	302.2
0957	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,400	2,200	Y	Y		100%	0.61	2,114	302.2
0027	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,500	2,100	Y	Y		100%	0.61	2,114	302.2
0033	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,400	2,350	Y	Y		100%	0.86	2,114	302.2
0959	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,400	2,400	Y	Y		100%	0.95	2,114	302.2
0035	610.08	Deoxynivalenol (ppb)	r-Biopharm Ridascreen FAST DON	1,812	3,160	Y	Y		100%	1.23	2,114	302.2
0227	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,200	2,900	Y	Y		100%	1.44	2,114	302.2
0660	610.01	Deoxynivalenol (ppb)	Neogen Veratox for DON	2,478	2,756	Y	Y		100%	1.66	2,114	302.2
2072	610.99	Deoxynivalenol (ppb)	Miscellaneous technique	3,010	2,290	Y	Y		100%	1.77	2,114	302.2
0004	620.11	Total Fumonisin (ppb)	Vicam FumoniTest	1.3	1.3	Y	Y		100%	-7.14	2,428	339.9
2050	620.02	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin 5/1	2.43	2.5	Y	Y		100%	-7.14	2,428	339.9
0202	620.09	Total Fumonisin (ppb)	r-Biopharm Ridascreen Fast Fumc	3	3	Y	Y		100%	-7.14	2,428	339.9
0958	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	3	3.1	Y	Y		100%	-7.14	2,428	339.9
0027	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	1,600	1,900	Y	Y		100%	-2.00	2,428	339.9

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0957	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	1,900	1,600	Y	Y		100%	-2.00	2,428	339.9
0042	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	2,400	2,050	Y	Y		100%	-0.60	2,428	339.9
2052	620.23	Total Fumonisin (ppb)	LC-MS/MS	2,296	2,154	Y	Y		100%	-0.60	2,428	339.9
0033	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	2,200	2,450	Y	Y		100%	-0.30	2,428	339.9
2033	620.23	Total Fumonisin (ppb)	LC-MS/MS	2,630	2,440	Y	Y		100%	0.31	2,428	339.9
0959	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	3,300	2,200	Y	Y		100%	0.95	2,428	339.9
0964	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	2,925	2,690	Y	Y		100%	1.12	2,428	339.9
0035	620.09	Total Fumonisin (ppb)	r-Biopharm Ridascreen Fast Fumc	2,938	2,833	Y	Y		100%	1.34	2,428	339.9
0227	620.01	Total Fumonisin (ppb)	Neogen Veratox for Fumonisin	3,000	3,000	Y	Y		100%	1.68	2,428	339.9
2052	621.23	FB1 (ppb)	LC-MS/MS	1,679	1,605	Y	Y		100%	-0.81	1,860	271
2033	621.23	FB1 (ppb)	LC-MS/MS	1,720	1,650	Y	Y		100%	-0.65	1,860	271
2060	621.23	FB1 (ppb)	LC-MS/MS	1,758	1,692	Y	Y		100%	-0.50	1,860	271
0001	621.23	FB1 (ppb)	LC-MS/MS	1,770	1,768	Y	Y		100%	-0.34	1,860	271
0964	621.21	FB1 (ppb)	LC-FI, OPA der.	2,494	2,466	Y	Y		100%	2.29	1,860	271
0553	621.23	FB1 (ppb)	LC-MS/MS	2,139	3,307	Y	Y		100%	3.18	1,860	271
0001	622.23	FB2 (ppb)	LC-MS/MS	382	403	Y	Y		100%	-1.71	559.5	97.678
2052	622.23	FB2 (ppb)	LC-MS/MS	419.9	376.4	Y	Y		100%	-1.65	559.5	97.678
2060	622.23	FB2 (ppb)	LC-MS/MS	515.8	479.7	Y	Y		100%	-0.63	559.5	97.678
0553	622.23	FB2 (ppb)	LC-MS/MS	509.9	723.4	Y	Y		100%	0.58	559.5	97.678
0964	622.21	FB2 (ppb)	LC-FI, OPA der.	650.9	793.2	Y	Y		100%	1.66	559.5	97.678
2033	622.23	FB2 (ppb)	LC-MS/MS	780	680	Y	Y		100%	1.75	559.5	97.678
2052	623.23	FB3 (ppb)	LC-MS/MS	197.4	173.2	Y	Y		100%	-1.74	279.4	54.149
2060	623.23	FB3 (ppb)	LC-MS/MS	298.5	276.9	Y	Y		100%	0.15	279.4	54.149
0553	623.23	FB3 (ppb)	LC-MS/MS	301.8	428.6	Y	Y		100%	1.58	279.4	54.149
0660	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	39.7	34.1	Y	Y		100%	-3.67	161.5	34
0958	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	41	41.8	Y	Y		100%	-3.53	161.5	34
0959	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	52.2	69.3	Y	Y		100%	-2.96	161.5	34
0957	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	95.3	44.9	Y	Y		100%	-2.69	161.5	34
2050	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	86.1	88.8	Y	Y		100%	-2.18	161.5	34
0964	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	97.8	100.2	Y	Y		100%	-1.84	161.5	34
2060	630.23	Ochratoxin A (ppb)	LC-MS/MS	155.4	170.7	Y	Y		100%	0.04	161.5	34
2033	630.23	Ochratoxin A (ppb)	LC-MS/MS	180	190	Y	Y		100%	0.69	161.5	34
0003	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	203	203	Y	Y		100%	1.22	161.5	34
0001	630.23	Ochratoxin A (ppb)	LC-MS/MS	211	210	Y	Y		100%	1.44	161.5	34
0227	630.01	Ochratoxin A (ppb)	Neogen Veratox for Ochratoxin	222	209	Y	Y		100%	1.59	161.5	34
0918	630.23	Ochratoxin A (ppb)	LC-MS/MS	228	218	Y	Y		100%	1.81	161.5	34
0553	630.23	Ochratoxin A (ppb)	LC-MS/MS	206.1	241	Y	Y		100%	1.82	161.5	34
2023	630.20	Ochratoxin A (ppb)	LC	317	272	Y	Y		100%	3.91	161.5	34
0964	630.21	Ochratoxin A (ppb)	LC post-col photochem der. FI	285.5	333.5	Y	Y		100%	4.35	161.5	34
0553	640.23	T-2 (ppb)	LC-MS/MS	25.72	29.34	Y	Y		100%	-3.93	160.6	33.823
2033	640.23	T-2 (ppb)	LC-MS/MS	118	107	Y	Y		100%	-1.42	160.6	33.823
0918	640.23	T-2 (ppb)	LC-MS/MS	126	119	Y	Y		100%	-1.13	160.6	33.823
0001	640.23	T-2 (ppb)	LC-MS/MS	180	171	Y	Y		100%	0.44	160.6	33.823

Lab #	Code	Analyte	Method	Result 1	Result 2	Detect ?		LOD	Probability of Detection	Z Score	Robust Value	Horwitz
						D1	D2					
0202	640.05	T-2 (ppb)	r-Biopharm Ridascreen FAST T-2	238.9	235.9	Y	Y		100%	2.27	160.6	33.823
0964	640.01	T-2 (ppb)	Neogen Veratox T-2 / HT-2	8,418	8,659	Y	Y		100%	247.70	160.6	33.823
0227	640.01	T-2 (ppb)	Neogen Veratox T-2 / HT-2	40,100	40,760	Y	Y		100%	1190.59	160.6	33.823
0555	640.23	T-2 (ppb)	LC-MS/MS			N	N	1000	0.00%	NoZ	160.6	33.823
2060	640.23	T-2 (ppb)	LC-MS/MS			N	N	200	12.18%	NoZ	160.6	33.823
0957	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	0.183	0.195	Y	Y		100%	-4.96	216	43.514
0553	650.24	Zearalenone (ppb)	LC-MS/MS	79.03	71.35	Y	Y		100%	-3.24	216	43.514
0202	650.06	Zearalenone (ppb)	r-Biopharm Ridascreen FAST Zea	103.2	104.1	Y	Y		100%	-2.58	216	43.514
0918	650.24	Zearalenone (ppb)	LC-MS/MS	118	141	Y	Y		100%	-1.99	216	43.514
2033	650.24	Zearalenone (ppb)	LC-MS/MS	147.5	148	Y	Y		100%	-1.57	216	43.514
0227	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	168	151	Y	Y		100%	-1.30	216	43.514
2052	650.24	Zearalenone (ppb)	LC-MS/MS	205.4	135.2	Y	Y		100%	-1.05	216	43.514
0003	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	255	213	Y	Y		100%	0.41	216	43.514
0035	650.07	Zearalenone (ppb)	r-Biopharm Ridascreen FAST Zea	295.8	176.9	Y	Y		100%	0.47	216	43.514
0033	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	254	227	Y	Y		100%	0.56	216	43.514
0027	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	264	284	Y	Y		100%	1.33	216	43.514
0001	650.24	Zearalenone (ppb)	LC-MS/MS	285	309	Y	Y		100%	1.86	216	43.514
0660	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	302	293.1	Y	Y		100%	1.87	216	43.514
2023	650.20	Zearalenone (ppb)	LC	358.1	292.6	Y	Y		100%	2.51	216	43.514
2060	650.24	Zearalenone (ppb)	LC-MS/MS	359.2	353.4	Y	Y		100%	3.22	216	43.514
0964	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone	383.1	391.2	Y	Y		100%	3.93	216	43.514
0958	650.01	Zearalenone (ppb)	Neogen Veratox Zearalenone			N	N	0	100.00%	NoZ	216	43.514
0555	650.24	Zearalenone (ppb)	LC-MS/MS			N	N	500	0.00%	NoZ	216	43.514

Notes: Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). If only 1 of 2 results detected Z for that is Grey and Probability of Detection is for the Non-Detect (see documentation). A Red NoZ indicates both results Not Detected with a Probability Of Detecting a single value.

Where the Assigned Value is ND then the LOD follows as (LOD) in the Analyte units.

Revised Mycotoxin Proposal

Recommendations

- Use Robust Consensus to Calculate Z Scores.
- Where There is Minimal Data Use Reference Lab to Calculate Z Scores.
- Continue to Collect Reference Lab Homogeneity Data.
- Continue to Use Horwitz Relationship to Estimate σ_p (fit for purpose).
- Continue to Calculate Probability of Detection for Non Detects.
- Include Analyte Report in the Data Reporting Website

Comments?

Dog Food # 201464

- Ship Date ~ 12/20/2014
- Data Due 01/10/2015
- Reports Available 01/31/2015





2015

AAFCO

Check Sample Program

THANK YOU!