FAPAS® Report 19158

Pesticides in Lettuce

October-December 2013

PARTICIPANT LABORATORY NUMBER

Participants can log in to FAPAS SecureWeb at any time to obtain their laboratory number for this proficiency test.

Laboratory numbers are displayed in SecureWeb next to the download link for this report.

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UKAS PROFICIENCY TESTING
0009

SUMMARY

1. The test material for FAPAS® proficiency test 19158 was dispatched in October 2013. Each participant received a lettuce purée test material. From a list of 206 pesticide residues, participants had to identify and quantify those present.

2. The test material contained arbendazim, cyfluthrin (sum), deltamethrin, fenarimol, fenitrothion, gamma-HCH (gamma-hexachlorocyclohexane/lindane), isoprocarb, lenacil, methiocarb sulfone, oxydemeton-methyl (demeton-S-methyl sulfoxide), pirimiphos-methyl, propyzamide, thiamethoxam, tolclofos-methyl and trifluralin. An assigned value (x_a) was determined for each analyte and in conjunction with the standard deviation for proficiency (σ_p) was used to calculate a z-score for each result.

3. Results for this proficiency test are summarised as follows:

analyte	assigned value, x_a µg/kg	number of scores, |z| ≤2	total number of scores	% |z| ≤2
carbendazim	56.6	44	61	72
cyfluthrin (sum)	42.6	58	75	77
deltamethrin	86.3	57	72	79
fenarimol	44.2	63	71	89
fenitrothion	43.8	55	74	74
gamma-HCH	60.5	48	66	73
isoprocarb	57.9	45	54	83
lenacil	73.5	37	51	73
methiocarb sulfone	50.6	24	39	62
oxydemeton-methyl	77.7	31	45	69
pirimiphos-methyl	109.4	66	78	85
propyzamide	42.9	54	63	86
thiamethoxam	97.3	52	61	85
tolclofos-methyl	57.7	60	71	85
trifluralin	122.7	66	71	93

4. Surplus test materials are available for sale, see APPENDIX II.

CONTENTS

1. INTRODUCTION

1.1. Proficiency Testing

Proficiency testing aims to provide an independent assessment of the competence of participating laboratories. Together with the use of validated methods, proficiency testing is an essential element of laboratory quality assurance.

Further details of the FAPAS® proficiency testing scheme are available in our protocols [3, 4].

2. TEST MATERIAL

2.1. Preparation

Preparation of the samples for this proficiency test was sub-contracted to a laboratory meeting the quality requirements of the scheme's accreditation [2].

The test material was prepared from fresh lettuces, which were frozen and cryogenically milled. The test material was then partially thawed and mixed to form a suitable purée. The bulk sample was split into two batches: one for spiking and one for the blank test material.

Sub-samples were taken to screen for the possible presence of incurred residues and the remainder was stored at -20°C. No incurred residues were detected at, or above, 25 µg/kg. Carbendazim, cyfluthrin (sum), deltamethrin, fenarimol, fenitrothion, gamma-HCH (gamma-hexachlorocyclohexane/lindane), isoprocarb, lenacil, methiocarb sulfone, oxydemeton-methyl (demeton-S-methyl sulfoxide), pirimiphos-methyl, propyzamide, thiamethoxam, tolclofos-methyl and trifluralin were spiked into the test material.

Samples were stored at -20°C until dispatch.

2.2. Homogeneity

To test for homogeneity, randomly selected test materials were analysed in duplicate. Testing was sub-contracted to a laboratory meeting the quality requirements of the scheme's accreditation [2].

These data showed sufficient homogeneity and were not included in the subsequent calculation of the assigned values.

2.3. Dispatch

The start date was 21 October 2013. Test materials were sent to 99 participants.

3. RESULTS

The instructions for reporting results were as follows:

- Determine the level of pesticide residues present in the test material, in µg/kg, as received, uncorrected for recovery, together with the percentage recovery and limit of quantification (LoQ).
- All pesticide residues are to be reported as the parent compound only, unless specified otherwise on the results form. This included cyfluthrin, which was to be reported as the sum of constituent isomers.

Results were submitted by 88 participants (89%) before the closing date for this test, 5 December 2013.

Each participant was given a laboratory number, assigned in order of receipt of results. The reported analyte concentrations are given in Table 1 for carbendazim, cyfluthrin (sum), deltamethrin and fenarimol, Table 2 for fenitrothion, gamma-HCH, isoprocarb and lenacil, Table 3 for methiocarb sulfone, oxydemeton-methyl, pirimiphos-methyl and propyzamide, and Table 4 for thiamethoxam, tolclofos-methyl and trifluralin.

If a participant analysed for a pesticide residue that was in the test material, but did not identify it, and their limit of quantification was *below* the level needed for a z-score of -3.0, they were assessed as if their result was zero.

If a participant analysed for a pesticide residue that was in the test material, but did not identify it and their LoQ was *above* the level needed for a z-score of -3.0, then the result was recorded as <LoQ.

Any participant identifying pesticide residues other than carbendazim, cyfluthrin (sum), deltamethrin, fenarimol, fenitrothion, gamma-HCH, isoprocarb, lenacil, methiocarb sulfone, oxydemeton-methyl, pirimiphos-methyl, propyzamide, thiamethoxam, tolclofos-methyl and trifluralin at levels above 25 µg/kg is listed in Table 5.

Participants' comments are given in Table 6.

The analytical methods used by each participant are summarised in APPENDIX I.

4. STATISTICAL EVALUATION OF RESULTS

The results submitted by participants were statistically analysed in order to provide an assigned value for each analyte. The assigned values were then used in combination with the standard deviation for proficiency, σ_p, to calculate a z-score for each result. The procedure follows that recommended in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [5].

Further details on the procedure followed can be found in the relevant protocols [3, 4].

4.1. Calculation of the Assigned Value, x_a

The assigned value, x_a, for each analyte was derived from the consensus of the results submitted by participants.

The following results were excluded from the calculation of the assigned value:

i) non numerical results i.e. qualitative or semi-quantitative results,

ii) results reported as approximately 10, 100 or 1000 × greater or smaller than the majority of submitted results (as these were considered to be reporting errors),

iii) results where no percentage recovery was reported,

iv) results whose recovery was outside the range 60-140% [6],

v) results where no limit of quantification (LoQ) was reported,

vi) results less than the reported LoQ.

For cyfluthrin (sum), deltamethrin, fenarimol, fenitrothion, gamma-HCH, isoprocarb, oxydemeton-methyl, pirimiphos-methyl, propyzamide, thiamethoxam, tolclofos-methyl and trifluralin, this procedure was straightforward and the robust mean was chosen as the assigned value.

For carbendazim, lenacil and methiocarb sulfone, the major mode was chosen to set the assigned values because the distributions of results for these analytes were skewed. Plots of the distribution of results are shown in Figures 1, 8 and 9, respectively.

The assigned values for all analytes are shown in Table 7.

4.2. Standard Deviation for Proficiency, σ_p

The standard deviation for proficiency, σ_p, was set at a value that reflects best practice for the analyses in question.

For all analytes, σ_p was derived from the appropriate form of the Horwitz equation [7].

The values for σ_p used to calculate z-scores from the reported results of this test are given in Table 7.

4.3. Individual z-Scores

Participants' z-scores were calculated as:

$$z = \frac{(x - x_a)}{\sigma_p}$$

where x = the participant's reported result,
x_a = the assigned value
and σ_p = the standard deviation for proficiency.

Participants' z-scores for all analytes are given in Tables 1–4 and shown as histograms in Figures 1–15. It is possible for the z-scores published in this report to differ slightly from the z-score that can be calculated using the formula given above. These differences arise from the necessary rounding of the actual assigned values and standard deviations for proficiency prior to their publication in Table 7.

The number and percentage of z-scores in the range $-2 \leq z \leq 2$ for all analytes are given in Table 8.

5. INTERPRETATION OF SCORES

In normal circumstances, over time, about 95% of z-scores will lie in the range $-2 \leq z \leq 2$. Occasional scores in the range $2 < |z| < 3$ are to be expected, at a rate of 1 in 20. Whether or not such scores are of importance can only be decided by considering them in the context of the other scores obtained by that laboratory.

Scores where $|z| > 3$ are to be expected at a rate of about 1 in 300. Given this rarity, such z-scores very strongly indicate that the result is not fit-for-purpose and almost certainly requires investigation.

The consideration of a set or sequence of z-scores over time provides more useful information than a single z-score. Examples of suitable methods of comparison are provided in the IUPAC International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories [5].

6. REFERENCES

1 Adobe Certified Document Services, http://www.adobe.com/misc/pki/cds_cp.html, accessed 08/05/2013.

2 ISO/IEC 17043:2010, Conformity assessment – General requirements for proficiency testing.

3 FAPAS, 2012, Protocol for Proficiency Testing Schemes, Part 1 – Common Principles, Version 3, Issued January 2012.

4 FAPAS, 2012, Protocol for Proficiency Testing Schemes, Part 2 – FAPAS®, Version 2, Issued January 2012.

5 Thompson, M., Ellison, S.L.R. and Wood, R., 2006, The International Harmonised Protocol for the Proficiency Testing of Analytical Chemistry Laboratories, *Pure Appl. Chem.*, **78**, No. 1, 145–196.

6 Method Validation and Quality Control Procedures for Pesticide Residue Analysis in Food and Feed, Document No. SANCO/12495/2011.

7 Thompson, M., 2000, Recent trends in inter-laboratory precision at ppb and sub-ppb concentrations in relation to fitness for purpose criteria in proficiency testing, *Analyst*, **125**, 385-386.

Table 1: Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
001	#				#				71		20	-0.8	#			
002	#				32.85	80.02	10	-1.0	#				31.56	80.02	10	-1.3
003	#				59.5		100	1.8	#				45.3		20	0.1
004	49		10	-0.6	28		10	-1.6	44		10	**-2.2**	45		10	0.1
005	47.6	103	10	-0.7	33	113	10	-1.0	64	109	10	-1.2	49	113	10	0.5
006	#				0			**-4.5**	92	103	10	0.3	#			
007	58.1	94	10	0.1	33.1	90	20	-1.0	73	85	50	-0.7	33	85	10	-1.1
008	74.8	108	10	1.5	36.7	114	10	-0.6	79.1	108	10	-0.4	34.1	71	10	-1.0
009	46.6	55	10	-0.8	25.3	97	10	-1.8	121.1	114	10	1.8	49.3	105	10	0.5
010	#				73.4		100	**3.3**	#				43.2		20	-0.1
011	60	90	10	0.3	50	104	20	0.8	120	77	20	1.8	46	101	10	0.2
012	#				57.6	99	20	1.6	35.8	98	10	**-2.7**	72.5	100	10	**2.9**
013	#				50.0		100	0.8	#				30.1		20	-1.4
014	68	106	50	0.9	44	103	20	0.2	84	96	30	-0.1	45	98	20	0.1
015	55.26			-0.1	40.5			-0.2	84.8			-0.1	36.5			-0.8

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
016	55.9	70-120	10	-0.1	43.4	70-120	40	0.1	103.0	70-120	20	0.9	36.2	70-120	10	-0.8
017	415.20	96.33	3.10	**28.8**	#				<LOQ		183.20		#			
018	129.7	100	10	**5.9**	40.6	100	10	-0.2	103.5	100	10	0.9	42.8	100	10	-0.1
019	42.0	92	15	-1.2	0			**-4.5**	67.0	87	150	-1.0	38.0	90	30	-0.6
020	68.99	95	20	1.0	46.29	100	10	0.4	88.77	100	10	0.1	#			
021	#				61.0	136.3	100	2.0	#				57.1	108.0	20	1.3
022	76.5	102	10	1.6	38	75	10	-0.5	97	95	10	0.6	56.5	78	10	1.3
023	<30	79	30		0			**-4.5**	0			**-4.5**	<30	77	30	
024	#				#				#				#			
025	65	111		0.7	38.3	97		-0.5	55.8	90		-1.6	56.6	106		1.3
026	#				86.0		100	**4.6**	#				51.6		20	0.8
027	103	85		**3.7**	#				#				54	81		1.0
028	#				58.4	103.7	15	1.7	92.3	102.8	30	0.3	52.8	98.3	25	0.9
029	#				0			**-4.5**	0			**-4.5**	0			**-4.5**
030	0.041		0.01	**-4.5**	0.031		0.01	**-4.5**	0.056		0.01	**-4.5**	0.038		0.01	**-4.5**

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Table 1 (continued): Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
031	49	120	10	-0.6	38	98.5	20	-0.5	92	104	10	0.3	39	95.1	10	-0.5
032	58	84	10	0.1	45	106	10	0.3	96	94	10	0.5	45	101	10	0.1
033	24	70	10	**-2.6**	#				#				48	105	5	0.4
034	64	84	100	0.6	93	124	50	**5.4**	182	117	50	**5.0**	#			
035	#				41.69	99	30	-0.1	91.46	100	30	0.3	#			
036	#				44.47	119.4	10	0.2	74.18	103.75	10	-0.6	#			
037	54	92	5	-0.2	41	95	10	-0.2	94	94	10	0.4	45	95	10	0.1
038	102.9	81.0	10	**3.7**	51.1	97.4	10	0.9	106.4	99.3	10	1.1	49.4	85.7	10	0.5
039	#				44	102	10	0.2	92	91	25	0.3	33	84	10	-1.1
040	95	97	10	**3.1**	47	111	30	0.5	104	90	30	0.9	50	101	30	0.6
041	39.2	84.75	5	-1.4	63.5	130	100	**2.2**	69.4	55	100	-0.9	24.2	93.25	10	**-2.1**
042	#				#				<LOQ	78.41	50		#			
043	73.3	98	5	1.3	40.3	99	5	-0.2	65.8	99	5	-1.1	43.0	98	5	-0.1
044	0.022	75.3	0.010	**-4.5**	#				#				#			
045	#				#				#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
046	46	92	10	-0.9	50	110	10	0.8	85	87	10	-0.1	42	81	10	-0.2
047	33	110.3	10	-1.9	35	90.5	10	-0.8	106	113.8	10	1.0	20	110.0	10	**-2.5**
048	0			**-4.5**	30	129	10	-1.3	43	118	10	**-2.3**	46	126	10	0.2
049	539.67	93.64	47.98	**38.8**	44.60	103.21	29.45	0.2	69.00	87.62	18.41	-0.9	43.92	99.62	9.65	0.0
050	38		10	-1.5	44.7		10	0.2	103.1		10	0.9	47		10	0.3
051	#				31.5	99.6	10	-1.2	69.8	73.0	10	-0.9	34.8	100	20	-1.0
052	39		10	-1.4	42		10	-0.1	98		10	0.6	73		10	**3.0**
053	56	91	10	0.0	41	77	10	-0.2	41.7	63	10	**-2.4**	25.8	70	10	-1.9
054	52.3	76	10	-0.3	40.5	80	10	-0.2	67.5	87	10	-1.0	38.1	85	10	-0.6
055	61	111	10	0.4	#				93	108	10	0.4	44	103	10	0.0
056	59.08	94.5	10	0.2	41.48	86.3	10	-0.1	72.54	93.8	10	-0.7	45.93	88.7	10	0.2
057	50	93	10	-0.5	60	94	10	1.9	110	91	10	1.2	55	98	10	1.1
058	60		10	0.3	42		10	-0.1	35		10	**-2.7**	49		10	0.5
059	54.0	83.6	10	-0.2	53.1	93.1	10	1.1	63.0	89.4	10	-1.2	38.4	80.9	10	-0.6
060	64		10	0.6	0			**-4.5**	0			**-4.5**	37		10	-0.7

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
061	60.8	118	10	0.3	0			**-4.5**	0			**-4.5**	52.9	120	10	0.9
062	56	83	5	0.0	41	104	5	-0.2	82	100	5	-0.2	44	98	5	0.0
063	90	94	10	**2.7**	40	107	10	-0.3	97	100	3	0.6	41	100	10	-0.3
064	68		10	0.9	48		10	0.6	100		10	0.7	46		10	0.2
065	#				26	75	10	-1.8	67	75	10	-1.0	#			
066	#				25.6		10	-1.8	63.8		10	-1.2	#			
067	#				31	100	10	-1.2	70	100	10	-0.9	56	100	10	1.2
068	0	-	10	**-4.5**	0	13	10	**-4.5**	0	-	10	**-4.5**	48	107	10	0.4
069	#				#				#				34	119	10	-1.0
070	64.5	66.2	50	0.6	44.2	81.3	10	0.2	84.0	61.0	25	-0.1	48.0	99.3	10	0.4
071	#				#				92.00			0.3	#			
072	#				40.51	99.5	10	-0.2	89.97	101	10	0.2	#			
073	13		10	**-3.5**	35		10	-0.8	71		10	-0.8	41		10	-0.3
074	90	85	10	**2.7**	0			**-4.5**	86	91	10	0.0	50	102	10	0.6
075	71.102	91.45	10	1.2	#				#				33.218	84.00	10	-1.1

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 1 (continued): Results and z-Scores for Carbendazim, Cyfluthrin (sum), Deltamethrin and Fenarimol

laboratory number	analyte															
	carbendazim assigned value 56.6 µg/kg				cyfluthrin (sum) assigned value 42.6 µg/kg				deltamethrin assigned value 86.3 µg/kg				fenarimol assigned value 44.2 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
076	74	98	10	1.4	35	95	10	-0.8	107	92	10	1.1	41	95	10	-0.3
077	188	72	10	**10.6**	46	105	10	0.4	96	77	10	0.5	46	92	10	0.2
078	58	102	10	0.1	23	115	10	**-2.1**	48	116	20	-2.0	22	87	10	**-2.3**
079	185.84	107	10	**10.4**	35.04	81	10	-0.8	84.04	82	10	-0.1	49.17	109	10	0.5
080	45.00	52	10	-0.9	60.26	58	10	1.9	177.48	60	10	**4.8**	56.00	67	10	1.2
081	36.7	87	10	-1.6	56	102	10	1.4	88.9	104	10	0.1	62	106	10	1.8
082	59	82	10	0.2	32	100	10	-1.1	65	79	10	-1.1	40	106	10	-0.4
083	50	72	10	-0.5	157	116	10	**12.2**	43	105	10	**-2.3**	46	93	10	0.2
084	0			**-4.5**	0			**-4.5**	61	88	10	-1.3	100	92	10	**5.7**
085	#				#				#				#			
086	#				278	105	10	**25.1**	183	89	10	**5.1**	44	134	10	0.0
087	44	100	10	-1.0	56	100	10	1.4	124	100	10	2.0	48	100	10	0.4
088	64		10	0.6	38		10	-0.5	120		30	1.8	53		10	0.9

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2: Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
001	44		10	0.0	39		10	-1.6	#				76		10	0.2
002	28.28	80.70	10	-1.6	41.84	82.82	10	-1.4	38.93	82.82	10	-1.5	49.11	80.02	10	-1.5
003	46.4		10	0.3	#				60.3		100	0.2	#			
004	16		10	**-2.9**	31		10	**-2.2**	58		10	0.0	60		10	-0.8
005	36	131	10	-0.8	#				#				#			
006	#				65		10	0.3	#				#			
007	31	90	10	-1.3	48	89	10	-0.9	51.8	100	10	-0.5	54.4	78	10	-1.2
008	38.9	101	10	-0.5	56.2	93	10	-0.3	62.0	97	10	0.3	113	102	50	**2.4**
009	39.4	119	10	-0.5	24.9	36	10	**-2.7**	51.6	81	10	-0.5	#			
010	48.1		10	0.4	#				57.7		100	0.0	#			
011	40	121	10	-0.4	70	111	10	0.7	60	90	10	0.2	0			**-4.5**
012	55.8	95	10	1.2	#				#				106	91	30	2.0
013	37.7		10	-0.6	#				30.2		100	**-2.2**	#			
014	#				68	101	20	0.6	62	113	50	0.3	72	96	20	-0.1
015	29.0			-1.5	47.3			-1.0	46.5			-0.9	51.8			-1.3

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
016	47.8	70-120	10	0.4	59.4	70-120	10	-0.1	51.8	70-120	10	-0.5	71.8	70-120	10	-0.1
017	#				#				#				#			
018	29.3	100	10	-1.5	63.7	100	10	0.2	64.3	100	10	0.5	#			
019	0			**-4.5**	52.0	79	30	-0.6	#				#			
020	#				#				60.01	97	20	0.2	#			
021	54.6	90.9	10	1.1	#				63.8	90.9	100	0.5	#			
022	49.5	86	10	0.6	92	110	10	**2.4**	58.5	70	10	0.1	119.2	65	10	**2.8**
023	46	108	30	0.2	0			**-4.5**	#				#			
024	83	82	10	**4.1**	89	80	10	**2.1**	#				#			
025	36.1	102		-0.8	48.3	96		-0.9	59.8	100		0.2	74	103		0.0
026	63.8		10	**2.1**	#				61.0		100	0.2	#			
027	43	72		-0.1	61	92		0.0	#				82	78		0.5
028	49.4	103.3	15	0.6	65.8	96.5	15	0.4	#				78.3	100.6	20	0.3
029	#				62	86		0.1	#				#			
030	0.042		0.01	**-4.5**	0.049		0.01	**-4.5**	#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
031	42	102	10	-0.2	62	99.6	10	0.1	51	89.8	10	-0.5	98	88.7	5	1.5
032	38	84	10	-0.6	40	69	10	-1.5	51	74	10	-0.5	66	96	10	-0.5
033	#				#				#				#			
034	#				82	97	50	1.6	#				#			
035	47.24	114	30	0.4	#				49.33	89.5	30	-0.7	#			
036	60.89	97.38	8	1.8	56.09	98.88	8	-0.3	68.83	115	8	0.9	260.75	120	8	**11.6**
037	45	92	10	0.1	52	84	10	-0.6	82	86	10	1.9	76	89	10	0.2
038	40.0	87.6	10	-0.4	78.7	62.0	10	1.4	26.8	83.0	10	**-2.4**	73.3	102.0	10	0.0
039	33	75	10	-1.1	39	82	10	-1.6	#				0			**-4.5**
040	43	96	10	-0.1	65	91	10	0.3	65	104	10	0.6	76	102	10	0.2
041	42.5	114.5	20	-0.1	47.3	102	10	-1.0	26.8	80.5	10	**-2.4**	48.9	68	10	-1.5
042	<LOQ	106.61	50		51.9	85.98	50	-0.6	#				#			
043	70.0	100	10	**2.7**	56.9	100	1	-0.3	74.0	98	5	1.3	58.1	99	10	-1.0
044	#				#				#				#			
045	#				40	101	8	-1.5	#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
046	55	90	20	1.2	NQ		10		66	96	10	0.6	71	89	10	-0.2
047	#				#				#				103	110.0	10	1.8
048	18	128	10	**-2.7**	#				#				#			
049	0	92.76	9.80	**-4.5**	57.54	101.96	7.20	-0.2	82.57	85.66	1.89	1.9	#			
050	76.9		10	**3.4**	64.6		10	0.3	0			**-4.5**	50		10	-1.5
051	32.0	74.8	10	-1.2	0			**-4.5**	42.9	76.4	10	-1.2	#			
052	63		10	2.0	23		10	**-2.8**	0			**-4.5**	120		10	**2.9**
053	43	106	10	-0.1	27.4	83	10	**-2.5**	45.9	91	10	-0.9	92	89	10	1.1
054	36.8	83	10	-0.7	62.2	75	10	0.1	54.6	95	10	-0.3	52.3	83	10	-1.3
055	49	109	10	0.5	70	109	10	0.7	62	101	10	0.3	246	106	10	**10.7**
056	39.91	92.6	10	-0.4	61.54	81.1	10	0.1	57.56	91.6	10	0.0	63.84	91.5	10	-0.6
057	38	95	10	-0.6	90	96	10	**2.2**	65	90	10	0.6	570	96	10	**30.7**
058	69		10	**2.6**	0			**-4.5**	54		10	-0.3	#			
059	83.5	96.4	10	**4.1**	54.6	98.1	10	-0.4	0			**-4.5**	83.7	64.0	10	0.6
060	0			**-4.5**	88		10	**2.1**	56		10	-0.1	134		10	**3.7**

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5 NQ = identified but not quantified

Table 2 (continued): Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
061	36.4	92.7	10	-0.8	0			**-4.5**	#				74.1	83.9	10	0.0
062	37	86	5	-0.7	65	92	5	0.3	58	99	10	0.0	70	101	10	-0.2
063	38	103	3	-0.6	104	112	3	**3.3**	64	107	10	0.5	73	104	10	0.0
064	49		10	0.5	65		10	0.3	63		10	0.4	76		10	0.2
065	34	95	10	-1.0	50	85	10	-0.8	40	95	10	-1.4	#			
066	0			**-4.5**	49.0		10	-0.9	0			**-4.5**	#			
067	70	100	10	**2.7**	#				#				#			
068	0	13	10	**-4.5**	#				#				0	18	10	**-4.5**
069	58	112	10	1.5	#				#				#			
070	40.4	84.8	25	-0.4	34.6	76.6	5	-1.9	#				#			
071	#				#				#				#			
072	38.58	95.5	10	-0.5	122.18	107.5	5	**4.6**	#				#			
073	42		10	-0.2	33		10	**-2.1**	#				74		10	0.0
074	49	109	10	0.5	0			**-4.5**	59	88	10	0.1	170	94	10	**6.0**
075	#				#				#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 2 (continued): Results and z-Scores for Fenitrothion, gamma-HCH, Isoprocarb and Lenacil

laboratory number	analyte															
	fenitrothion assigned value 43.8 µg/kg				gamma-HCH assigned value 60.5 µg/kg				isoprocarb assigned value 57.9 µg/kg				lenacil assigned value 73.5 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
076	0			**-4.5**	65	90	10	0.3	71	96	10	1.0	77	95	10	0.2
077	54	110	10	1.1	87	100	10	2.0	63	76	10	0.4	103	96	10	1.8
078	22	107	10	**-2.3**	31	98	10	**-2.2**	#				#			
079	35.53	85	10	-0.9	51.10	85	10	-0.7	#				209.89	108	10	**8.4**
080	50.56	72	10	0.7	61.58	48	10	0.1	0			**-4.5**	240.06	66	10	**10.3**
081	58	102	10	1.5	68	121	10	0.6	51	101	10	-0.5	83	108	10	0.6
082	37	100	10	-0.7	41	95	10	-1.5	57	91	10	-0.1	68	87	10	-0.3
083	20	224	10	**-2.5**	70		10	0.7	72	89	10	1.1	94	90	10	1.3
084	29	75	10	-1.5	#				0			**-4.5**	223	82	10	**9.2**
085	#				#				#				#			
086	104	97	10	**6.2**	56	74	10	-0.3	#				#			
087	48	100	10	0.4	76	100	10	1.2	#				67	100	10	-0.4
088	60		10	1.7	66		10	0.4	56		30	-0.1	65		10	-0.5

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3: Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
001	#				#				84		15	-1.1	#			
002	#				#				75.09	80.70	10	-1.4	31.36	82.82	10	-1.2
003	#				#				106.4		10	-0.1	#			
004	38		10	-1.1	56		10	-1.3	54		10	**-2.3**	37		10	-0.6
005	#				71.8	79	10	-0.3	106	113	10	-0.1	52.4	97	10	1.0
006	#				#				#				#			
007	42.6	97	10	-0.7	80.3	101	10	0.2	74	90	10	-1.5	38.1	101	10	-0.5
008	89.2	98	10	**3.5**	79.3	94	10	0.1	85.9	98	10	-1.0	41.7	88	10	-0.1
009	#				#				59.9	89	10	**-2.1**	34.6	85	10	-0.9
010	#				#				103.5		10	-0.2	#			
011	#				73	88	10	-0.3	141	105	10	1.3	80	90	10	**3.9**
012	#				#				133.2	100	10	1.0	49.0	105	10	0.6
013	#				#				64.2		10	-1.9	#			
014	#				74	100	50	-0.2	120	106	20	0.4	48	105	20	0.5
015	#				68.5			-0.5	79.2			-1.3	35.2			-0.8

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3 (continued): Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
016	44.9	70-120	10	-0.5	77.3	70-120	10	0.0	99.3	70-120	10	-0.4	41.2	70-120	10	-0.2
017	#				#				#				202.70	114.74	44.30	**16.9**
018	43.2	100	10	-0.7	0			**-4.5**	92.6	100	10	-0.7	39.5	100	10	-0.4
019	43.0	83	21	-0.7	64.0	80	15	-0.8	91.0	79	30	-0.8	38.0	83	30	-0.5
020	#				#				#				#			
021	#				#				99.7	83.8	10	-0.4	#			
022	57.5	102	10	0.6	89	106	10	0.7	154.5	101	10	1.9	48.5	104	10	0.6
023	#				#				79	83	30	-1.3	#			
024	#				#				173	89	10	**2.6**	#			
025	74	110		**2.1**	50	120		-1.6	102	106		-0.3	41.7	94		-0.1
026	#				#				97.4		10	-0.5	#			
027	#				149	81		**4.2**	142	77		1.4	75	89		**3.4**
028	#				#				138	104.3	30	1.2	43.8	108.6	15	0.1
029	#				#				109	98		0.0	#			
030	#				#				0.10		0.01	**-4.5**	0.039		0.01	**-4.5**

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3 (continued): Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
031	42	76.9	10	-0.8	73	103	10	-0.3	106	97.2	10	-0.1	37	92.2	10	-0.6
032	53	96	10	0.2	84	87	10	0.4	99	86	10	-0.4	35	88	10	-0.8
033	#				#				#				48	117	5	0.5
034	#				#				132	83	50	0.9	#			
035	#				#				#				#			
036	#				#				139.59	100.38	8	1.3	#			
037	65	80	10	1.3	97	96	10	1.1	112	90	10	0.1	44	96	10	0.1
038	#				69.1	86.0	10	-0.5	129.0	79.4	10	0.8	45.1	81.1	10	0.2
039	#				#				78	81	25	-1.3	30	83	10	-1.4
040	66	98	10	1.4	93	97	10	0.9	122	101	10	0.5	49	102	10	0.6
041	102.6	100	10	**4.7**	70.7	89.5	20	-0.4	65.8	101	10	-1.8	38.6	93.3	10	-0.5
042	#				#				92.8	84.21	50	-0.7	<LOQ	90.60	50	
043	100.4	98	10	**4.5**	#				70.1	99	10	-1.6	39.7	99	10	-0.3
044	#				#				#				#			
045	#				#				#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3 (continued): Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
046	150	111	10	**8.9**	73	83	10	-0.3	111	95	10	0.1	45	81	10	0.2
047	50	98.0	10	-0.1	#				119	90.0	10	0.4	41	92.0	10	-0.2
048	#				#				113	128	10	0.1	53	127	10	1.1
049	#				#				31.38	90.50	0.44	**-3.2**	#			
050	54		10	0.3	69		10	-0.5	148.8		10	1.6	28		10	-1.6
051	#				0			**-4.5**	107	100	10	-0.1	0			**-4.5**
052	58		10	0.7	0			**-4.5**	93		10	-0.7	53		10	1.1
053	#				#				69.9	84	10	-1.6	34.4	99	10	-0.9
054	47.1	104	10	-0.3	86.6	86	10	0.5	91.4	85	10	-0.7	33.6	82	10	-1.0
055	62	106	10	1.0	74	102	10	-0.2	106	108	10	-0.1	49	104	10	0.6
056	53.00	92.7	10	0.2	#				106.67	93.0	10	-0.1	43.83	94.3	10	0.1
057	130	89	10	**7.1**	0			**-4.5**	73	99	10	-1.5	35	98	10	-0.8
058	#				#				142		10	1.4	52		10	1.0
059	83.6	71.3	10	**3.0**	0			**-4.5**	101.4	92.8	10	-0.3	33.0	89.3	10	-1.0
060	67		10	1.5	91		10	0.8	105		10	-0.2	45		10	0.2

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3 (continued): Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
061	0			**-4.5**	0			**-4.5**	119.2	98.1	10	0.4	0			**-4.5**
062	51	107	10	0.0	71	93	10	-0.4	117	98	10	0.3	45	97	10	0.2
063	67	126	10	1.5	0			**-4.5**	123	108	3	0.6	44	109	3	0.1
064	67		10	1.5	70		10	-0.5	122		10	0.5	51		10	0.9
065	#				#				89	75	10	-0.8	#			
066	36.4		10	-1.3	63.2		10	-0.8	46.4		10	**-2.6**	#			
067	#				#				#				55	100	10	1.3
068	#				#				0	-	10	**-4.5**	14	68	10	**-3.1**
069	#				#				95	102	10	-0.6	#			
070	#				96.6	80.8	10	1.1	171.1	91.5	25	**2.6**	67.3	78.7	10	**2.6**
071	#				#				130.00			0.9	#			
072	#				#				222.75	100.5	10	**4.7**	#			
073	0			**-4.5**	69		10	-0.5	90		10	-0.8	40		10	-0.3
074	0			**-4.5**	#				199	96	10	**3.7**	45	107	10	0.2
075	#				#				#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 3 (continued): Results and z-Scores for Methiocarb Sulfone, Oxydemeton-Methyl, Pirimiphos-Methyl and Propyzamide

laboratory number	analyte															
	methiocarb sulfone assigned value 50.6 µg/kg				oxydemeton-methyl assigned value 77.7 µg/kg				pirimiphos-methyl assigned value 109.4 µg/kg				propyzamide assigned value 42.9 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
076	51	90	10	0.0	85	89	10	0.4	131	98	10	0.9	46	103	10	0.3
077	0			**-4.5**	72	108	10	-0.3	156	103	10	1.9	38	104	10	-0.5
078	#				#				53	106	10	**-2.3**	28	101	10	-1.6
079	0			**-4.5**	0			**-4.5**	113.39	102	10	0.2	43.51	90	10	0.1
080	#				0			**-4.5**	116.00	73	10	0.3	49.59	101	10	0.7
081	10.5	92	10	**-3.6**	0			**-4.5**	206	108	10	**4.0**	56	107	10	1.4
082	46	95	10	-0.4	29	86	10	**-2.8**	95	92	10	-0.6	33	83	10	-1.0
083	1675	91	10	**145.9**	79	75	10	0.1	137	94	10	1.1	33	101	10	-1.0
084	0			**-4.5**	#				79	86	10	-1.3	0			**-4.5**
085	#				#				#				#			
086	#				0	100	10	**-4.5**	144	98	10	1.4	53	120	10	1.1
087	#				0			**-4.5**	118	100	10	0.4	50	100	10	0.8
088	62		10	1.0	67		10	-0.6	126		10	0.7	48		10	0.5

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4: Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
001	104		10	0.3	39		10	-1.5	55		10	**-2.5**
002	#				41.68	80.70	10	-1.3	87.01	82.82	10	-1.3
003	#				59.7		20	0.2	130.7		10	0.3
004	115		10	0.8	33		10	-1.9	82		10	-1.5
005	103	110	10	0.3	70.3	66	10	1.0	114	109	10	-0.3
006	#				#				143	118	10	0.8
007	79.5	95	10	-0.8	43	90	10	-1.2	101	87	10	-0.8
008	101	90	10	0.2	50.3	100	10	-0.6	108	111	10	-0.5
009	94.0	70	10	-0.2	28.7	76	10	**-2.3**	90.1	91	10	-1.2
010	#				54.4		20	-0.3	129.9		10	0.3
011	78	90	10	-0.9	102	104	10	**3.5**	160	99	10	1.4
012	#				64.8	94	10	0.6	107	108	10	-0.6
013	#				34.7		20	-1.8	87.4		10	-1.3
014	110	108	50	0.6	#				180	109	20	**2.1**
015	88.9			-0.4	46.7			-0.9	109.7			-0.5

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4 (continued): Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
016	110	70-120	10	0.6	58	70-120	10	0.0	122	70-120	10	0.0
017	#				#				#			
018	81.0	100	10	-0.8	55.7	100	10	-0.2	136.2	100	10	0.5
019	69.0	84	24	-1.3	62.0	84	30	0.3	129	78	30	0.2
020	98.61	95	20	0.1	#				#			
021	#				51.8	82.8	20	-0.5	127.9	82.8	10	0.2
022	103.5	100	10	0.3	70	107	10	1.0	165	95	10	1.6
023	105	90	30	0.4	#				113	101	30	-0.4
024	#				107	90	10	**3.9**	#			
025	106	120		0.4	60.5	107		0.2	126	106		0.1
026	#				49.6		20	-0.6	138.6		10	0.6
027	241	92		**6.7**	79	61		1.7	138	77		0.6
028	#				75.5	108.6	20	1.4	155	100.0	25	1.2
029	#				63	93		0.4	122	106		0.0
030	0.093		0.01	**-4.5**	0.053		0.01	**-4.5**	0.13		0.01	**-4.6**

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4 (continued): Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
031	90	99.4	10	-0.3	57	100	10	-0.1	135	99.9	10	0.5
032	105	94	10	0.4	48	73	10	-0.8	107	66	10	-0.6
033	107	113	5	0.5	#				#			
034	#				#				#			
035	#				#				#			
036	#				78.21	104	8	1.6	162.37	102	8	1.5
037	112	108	10	0.7	70	96	10	1.0	165	105	10	1.6
038	98.1	85.9	10	0.0	64.3	82.0	10	0.5	132.5	94.7	10	0.4
039	#				39	81	10	-1.5	86	87	10	-1.4
040	136	102	10	1.8	69	100	10	0.9	162	91	10	1.5
041	78.0	68	10	-0.9	32.4	82.2	10	-2.0	117.4	109.3	10	-0.2
042	#				#				111.3	88.39	50	-0.4
043	84.5	99	10	-0.6	51.4	100	10	-0.5	100.7	99	10	-0.8
044	#				#				#			
045	#				#				#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4 (continued): Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
046	106	105	10	0.4	75	104	10	1.4	76	80	10	-1.7
047	104	118.1	10	0.3	72	103.7	10	1.1	#			
048	#				55	126	10	-0.2	54	119	10	**-2.6**
049	#				44.76	100.54	24.51	-1.0	#			
050	83		10	-0.7	80.2		10	1.8	127.7		10	0.2
051	59.7	65.3	10	-1.8	0			**-4.5**	115	60.0	10	-0.3
052	81		10	-0.8	90		10	**2.5**	154		10	1.2
053	94	89	10	-0.2	34.2	79	10	-1.9	90.9	98	10	-1.2
054	83.2	83	10	-0.7	41.5	75	10	-1.3	106.0	86	10	-0.6
055	106	104	10	0.4	61	108	10	0.3	125	106	10	0.1
056	97.71	85.3	10	0.0	60.75	84.5	10	0.2	121.25	98.5	10	-0.1
057	77	96	10	-0.9	60	97	10	0.2	100	91	10	-0.8
058	0			**-4.5**	73		10	1.2	132		10	0.3
059	99.2	52.6	10	0.1	50.2	92.0	10	-0.6	106.0	96.3	10	-0.6
060	108		10	0.5	65		10	0.6	89		10	-1.3

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4 (continued): Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
061	115.9	99.9	10	0.9	53.0	98.1	10	-0.4	92.1	80.6	10	-1.1
062	96	98	5	-0.1	65	99	5	0.6	142	88	5	0.7
063	95	88	10	-0.1	58	105	3	0.0	141	97	3	0.7
064	90		10	-0.3	65		10	0.6	125		10	0.1
065	88	95	10	-0.4	#				#			
066	0			**-4.5**	#				102.8		10	-0.7
067	#				62	100	10	0.3	#			
068	36	70	10	**-2.9**	0	-	10	**-4.5**	129	93	10	0.2
069	#				47	94	10	-0.8	71	66	10	-1.9
070	149.6	91.2	10	**2.4**	50.7	61.8	5	-0.6	103.7	64.7	50	-0.7
071	#				#				#			
072	#				#				#			
073	91		10	-0.3	104		10	**3.6**	90		10	-1.2
074	122	112	10	1.2	67	83	10	0.7	151	104	10	1.1
075	#				38.731	85.70	10	-1.5	#			

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 4 (continued): Results and z-Scores for Thiamethoxam, Tolclofos-Methyl and Trifluralin

laboratory number	analyte											
	thiamethoxam assigned value 97.3 µg/kg				tolclofos-methyl assigned value 57.7 µg/kg				trifluralin assigned value 122.7 µg/kg			
	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score	result µg/kg	recovery %	LoQ µg/kg	z-score
076	143	94	10	**2.1**	60	90	10	0.2	120	92	10	-0.1
077	108	99	10	0.5	76	96	10	1.4	170	94	10	1.8
078	85	109	10	-0.6	30	117	10	**-2.2**	#			
079	120.03	112	10	1.1	52.83	89	10	-0.4	127.72	105	10	0.2
080	223.00	30	10	**5.9**	70.43	61	10	1.0	157.46	46	10	1.3
081	79	105	10	-0.9	0			**-4.5**	194	106	10	**2.7**
082	95	105	10	-0.1	49	85	10	-0.7	90	84	10	-1.2
083	100		10	0.1	54		10	-0.3	124	133	10	0.0
084	0			**-4.5**	0			**-4.5**	73	89	10	-1.8
085	#				#				#			
086	96	80	10	-0.1	#				164	97	10	1.5
087	95	100	10	-0.1	79	100	10	1.7	159	100	10	1.4
088	121		10	1.1	70		10	1.0	162		10	1.5

= pesticide not analysed for z-scores outside |z| >2 are shown in **bold,** see Section 5

Table 5: Additional Pesticide Residues Reported

laboratory number	pesticide residue >25 µg/kg	result µg/kg	recovery %	LoQ µg/kg
017	diazinon	40.3	92.03	30.90
017	triadimefon	216.3	94.47	31.50
018	demeton-S-methyl sulfone	80.2	100	10
043	ethiofencarb	40	99	10
051	parathion-methyl	45.8	113	10
052	demeton-S-methyl sulfone	108		10
052	oxadixyl	33		10
061	bifenthrin	88.1	104	10
072	4,4'-methoxychlor	56.3	98.5	5
084	chlorpyrifos-methyl	34	89	10
084	kresoxim-methyl	64	79	10

Table 6: Participants' Comments

participant number	comments
009	Carbendazim is not fully recovered through method - result submitted uncorrected. Gamma-BHC co-elluting in spike with beta-BHC.
041	cyfluthrin and deltamethrine are below the LOQ
046	We detected gamma-HCH (Lindan) in traces (<LOQ 10 µg/kg) and Fenazaquin in the sample as well as in the blank sample (< LOQ 10 µg/kg)
048	Fenitrothion: screening at one point 48µg/Kg (the result is not concordant with the addition method) Trifluarin: screening at one point 119µg/Kg (the result is not concordant with the addition method)
059	We found traces of (<10) methiocarb sulfoxid. We found 62.3 µg/kg demeton-S-methyl-sulfoxid which is not listed (only demeton-S-methyl-sulfone).
060	Cadusafos: Traces below 10 µg/kg, about 6 µg/kg.

comments are as submitted by participants

Table 7: Assigned Values and Standard Deviations for Proficiency

analyte	data points, n	assigned value, x_a, µg/kg	uncertainty, u	standard deviation for proficiency, σ_p, µg/kg	
carbendazim	42	56.6	2.66	Horwitz [7]	12.5
cyfluthrin (sum)	48	42.6	1.51	Horwitz [7]	9.37
deltamethrin	52	86.3	3.22	Horwitz [7]	19.0
fenarimol	54	44.2	1.26	Horwitz [7]	9.71
fenitrothion	51	43.8	1.63	Horwitz [7]	9.64
gamma-HCH	43	60.5	2.80	Horwitz [7]	13.3
isoprocarb	36	57.9	1.91	Horwitz [7]	12.7
lenacil	37	73.5	2.36	Horwitz [7]	16.2
methiocarb sulfone	24	50.6	2.57	Horwitz [7]	11.1
oxydemeton-methyl	23	77.7	2.11	Horwitz [7]	17.1
pirimiphos-methyl	57	109.4	4.25	Horwitz [7]	24.1
propyzamide	48	42.9	1.29	Horwitz [7]	9.44
thiamethoxam	43	97.3	2.56	Horwitz [7]	21.4
tolclofos-methyl	48	57.7	2.18	Horwitz [7]	12.7
trifluralin	51	122.7	4.56	Horwitz [7]	26.9

Table 8: Number and Percentage of z-Scores where |z| ≤2

analyte	number of scores where |z| ≤2	total number of scores	% |z| ≤2
carbendazim	44	61	72
cyfluthrin (sum)	58	75	77
deltamethrin	57	72	79
fenarimol	63	71	89
fenitrothion	55	74	74
gamma-HCH	48	67	72
isoprocarb	45	54	83
lenacil	37	51	73
methiocarb sulfone	24	39	62
oxydemeton-methyl	31	45	69
pirimiphos-methyl	66	78	85
propyzamide	54	63	86
thiamethoxam	52	61	85
tolclofos-methyl	60	71	85
trifluralin	66	71	93

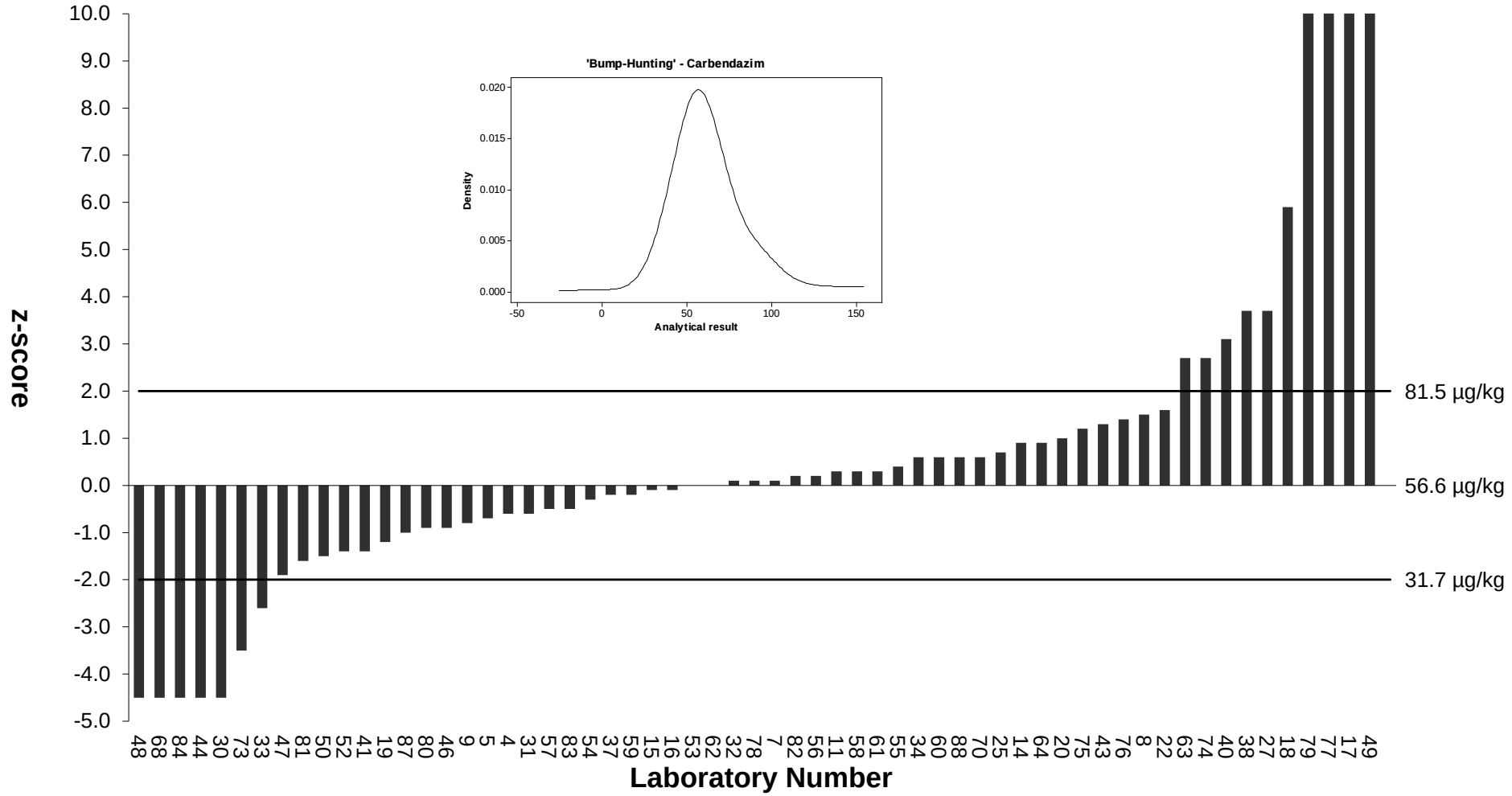

Figure 1: z-Scores for Carbendazim

Insert shows the distribution of results

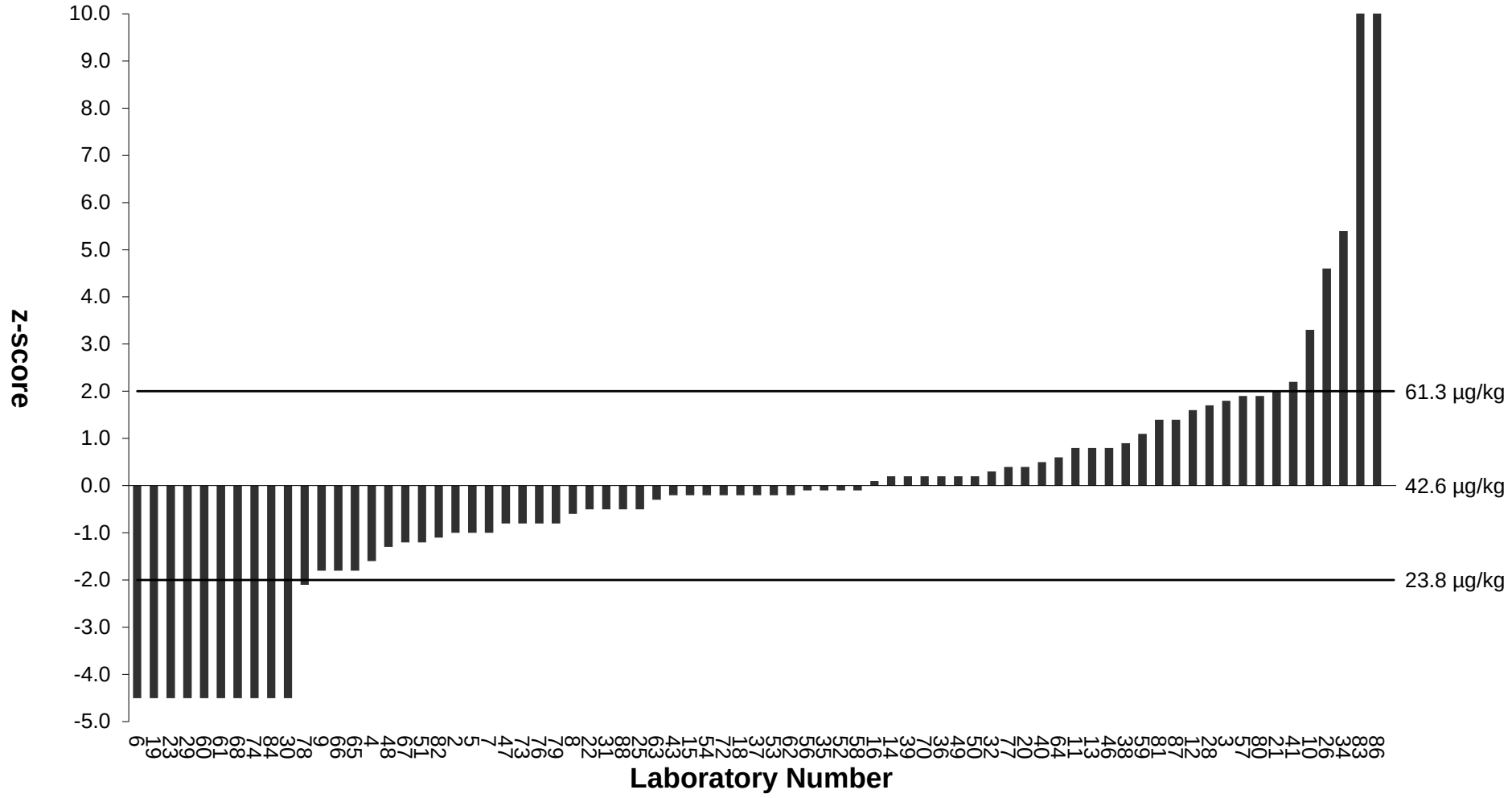

Figure 2: z-Scores for Cyfluthrin (Sum)

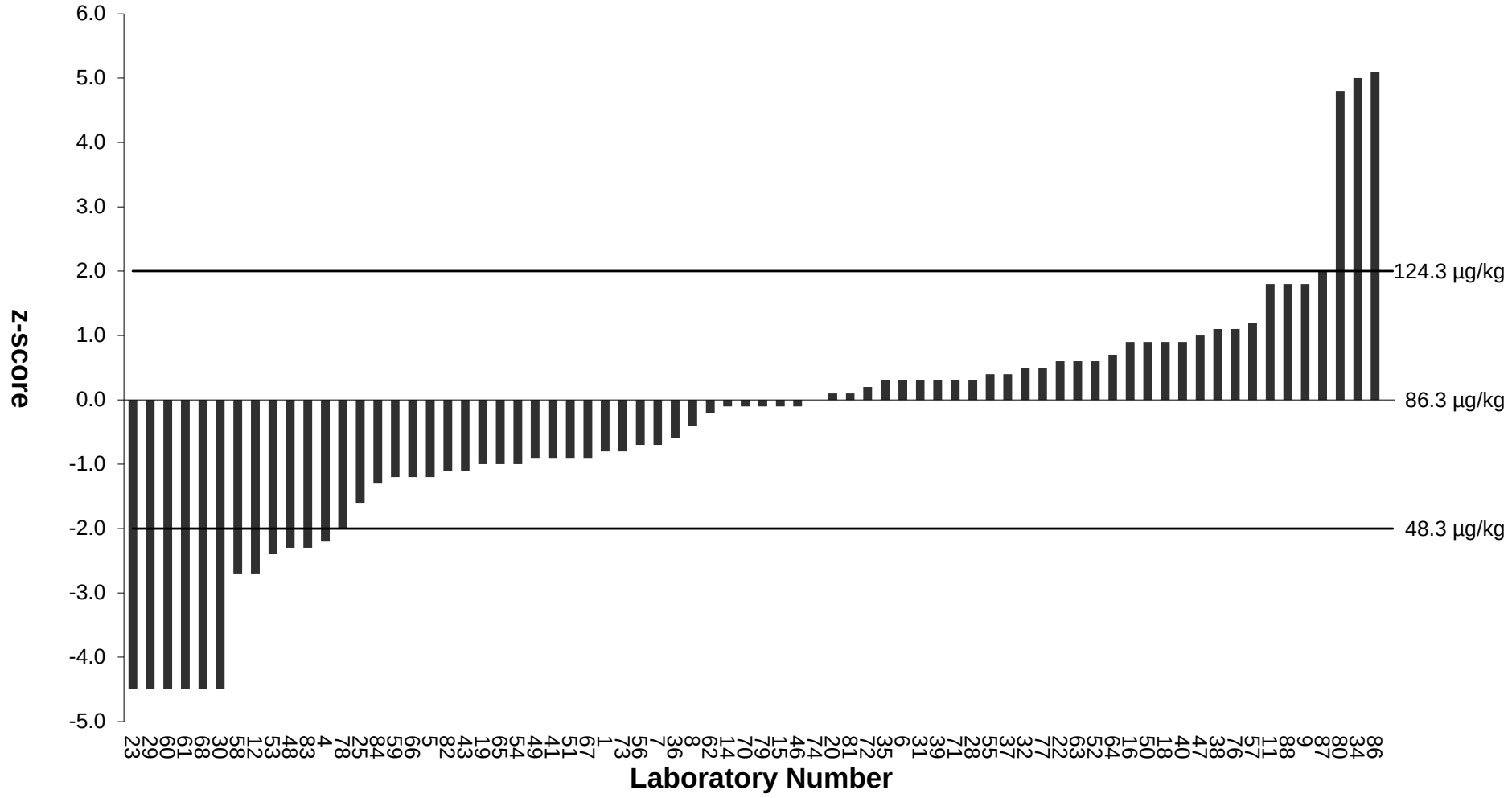

Figure 3: z-Scores for Deltamethrin

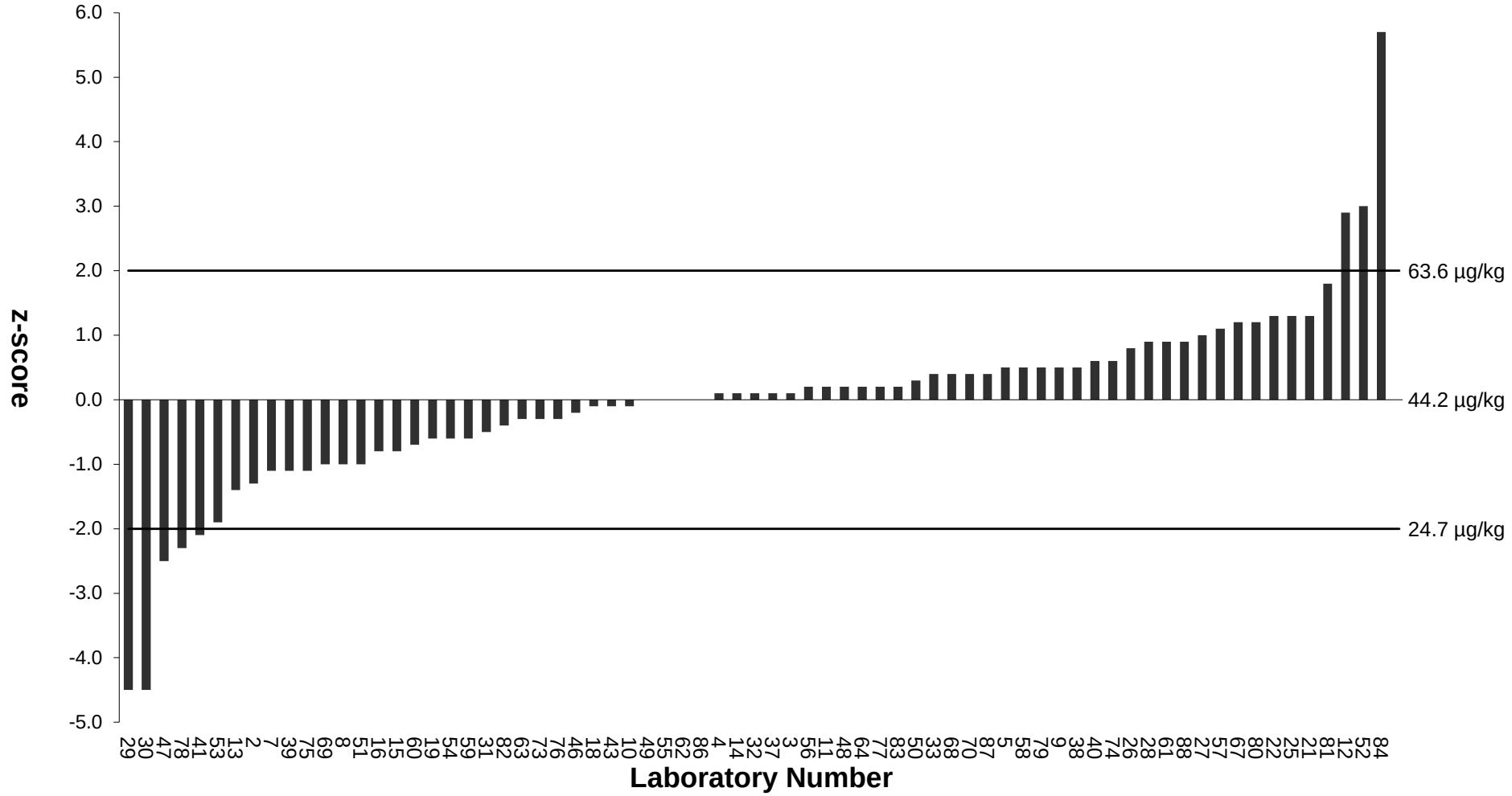

Figure 4: z-Scores for Fenarimol

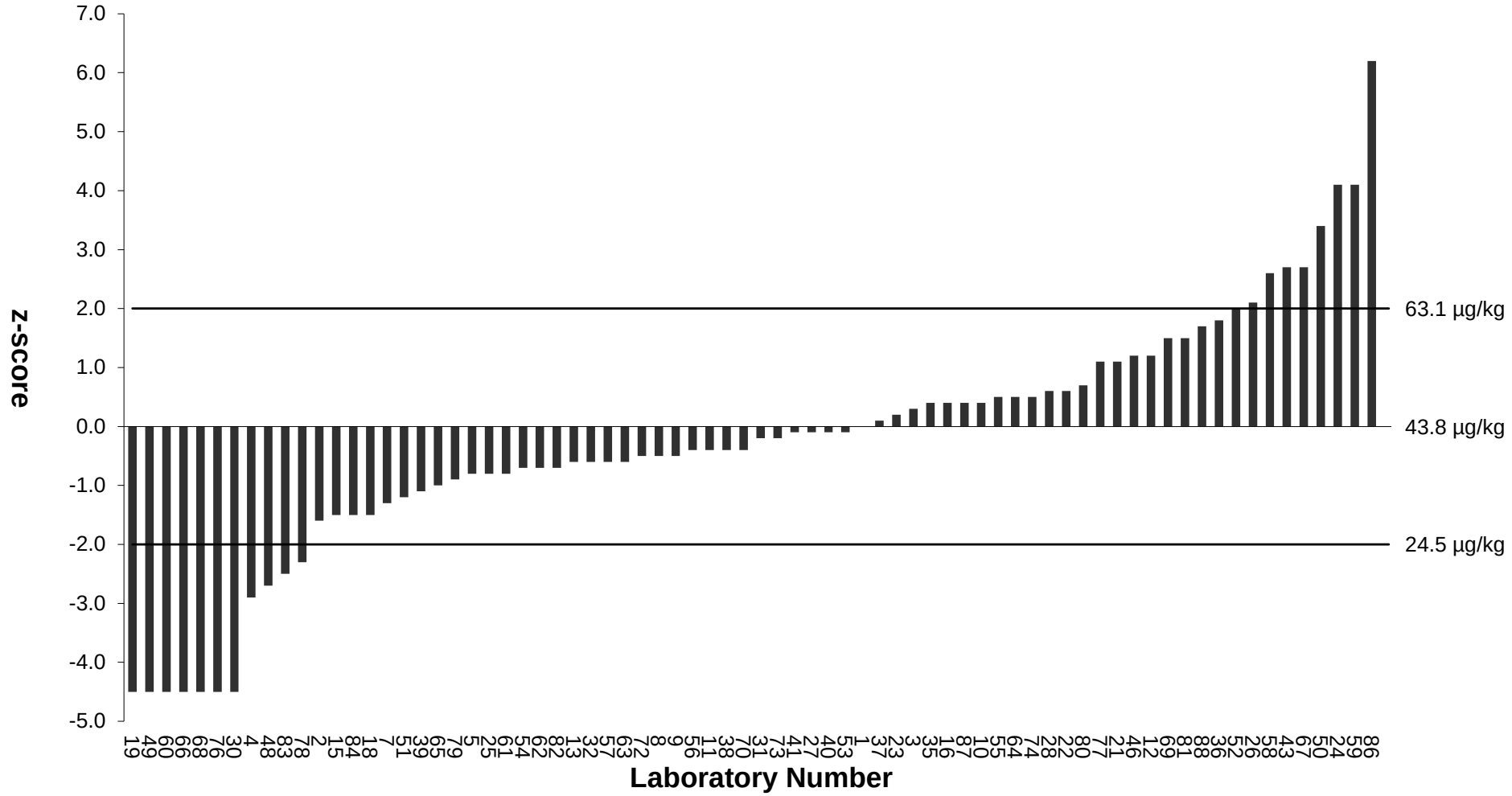

Figure 5: z-Scores for Fenitrothion

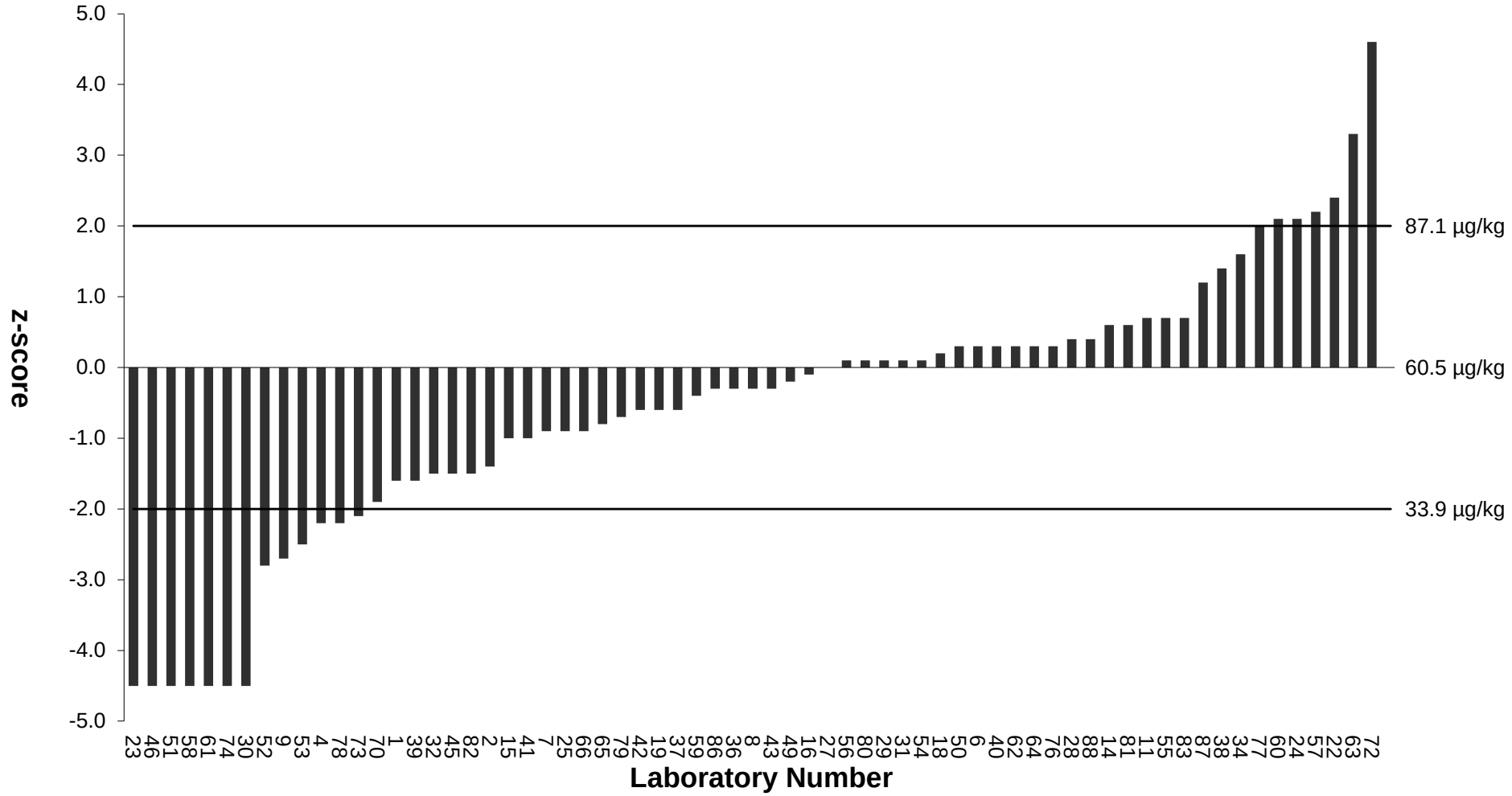

Figure 6: z-Scores for gamma-HCH

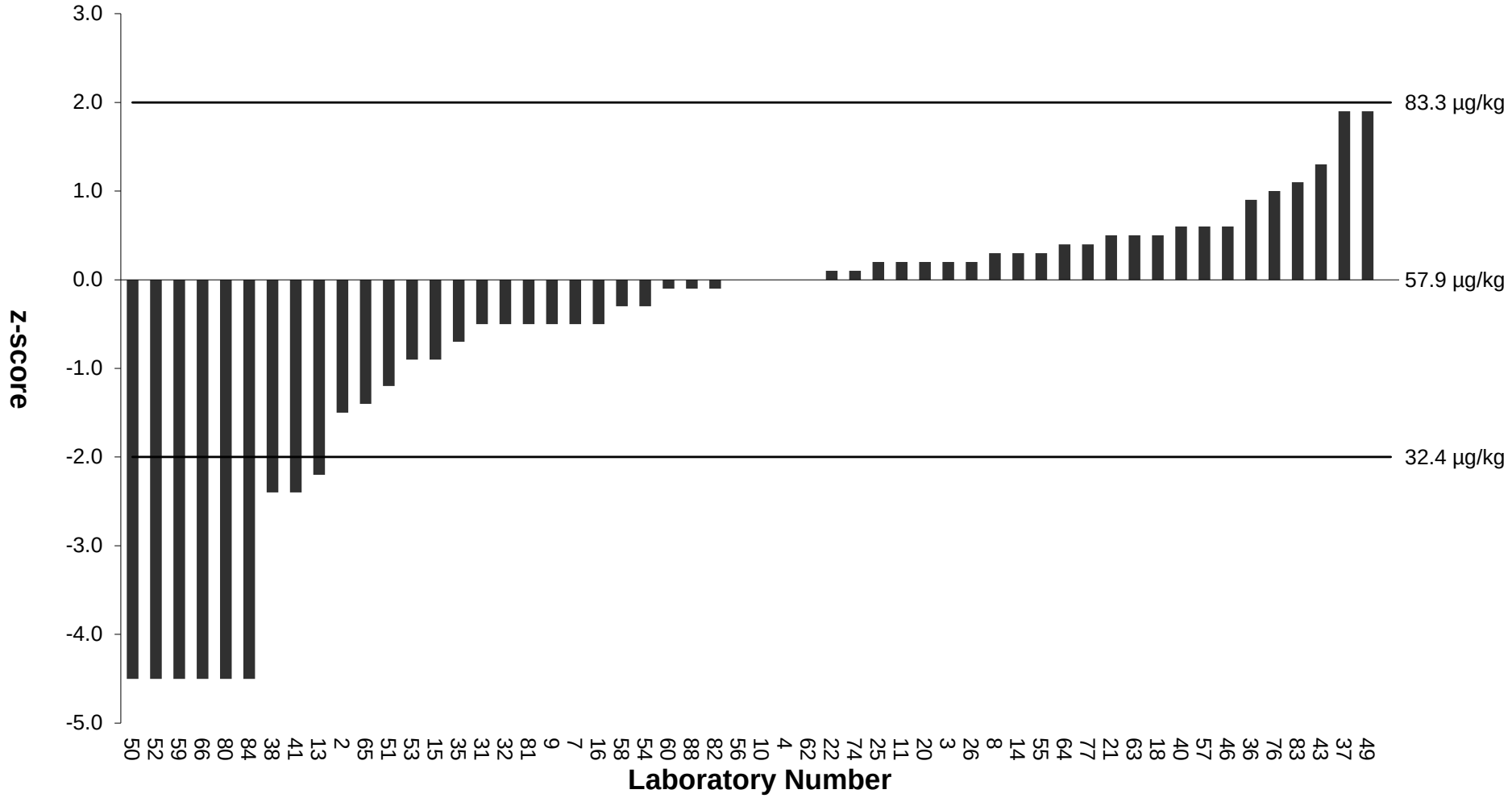

Figure 7: z-Scores for Isoprocarb

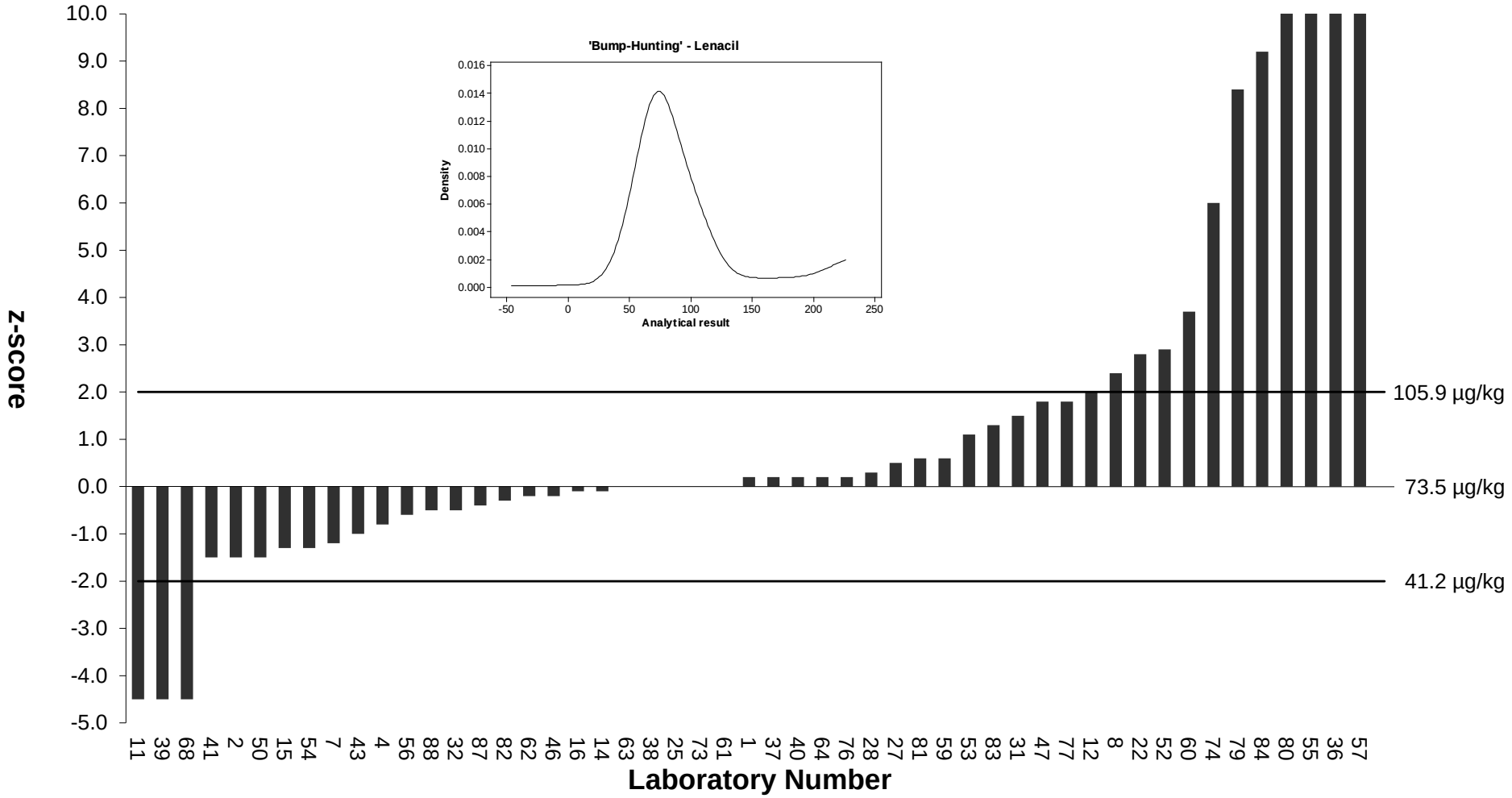

Figure 8: z-Scores for Lenacil

Insert shows the distribution of results

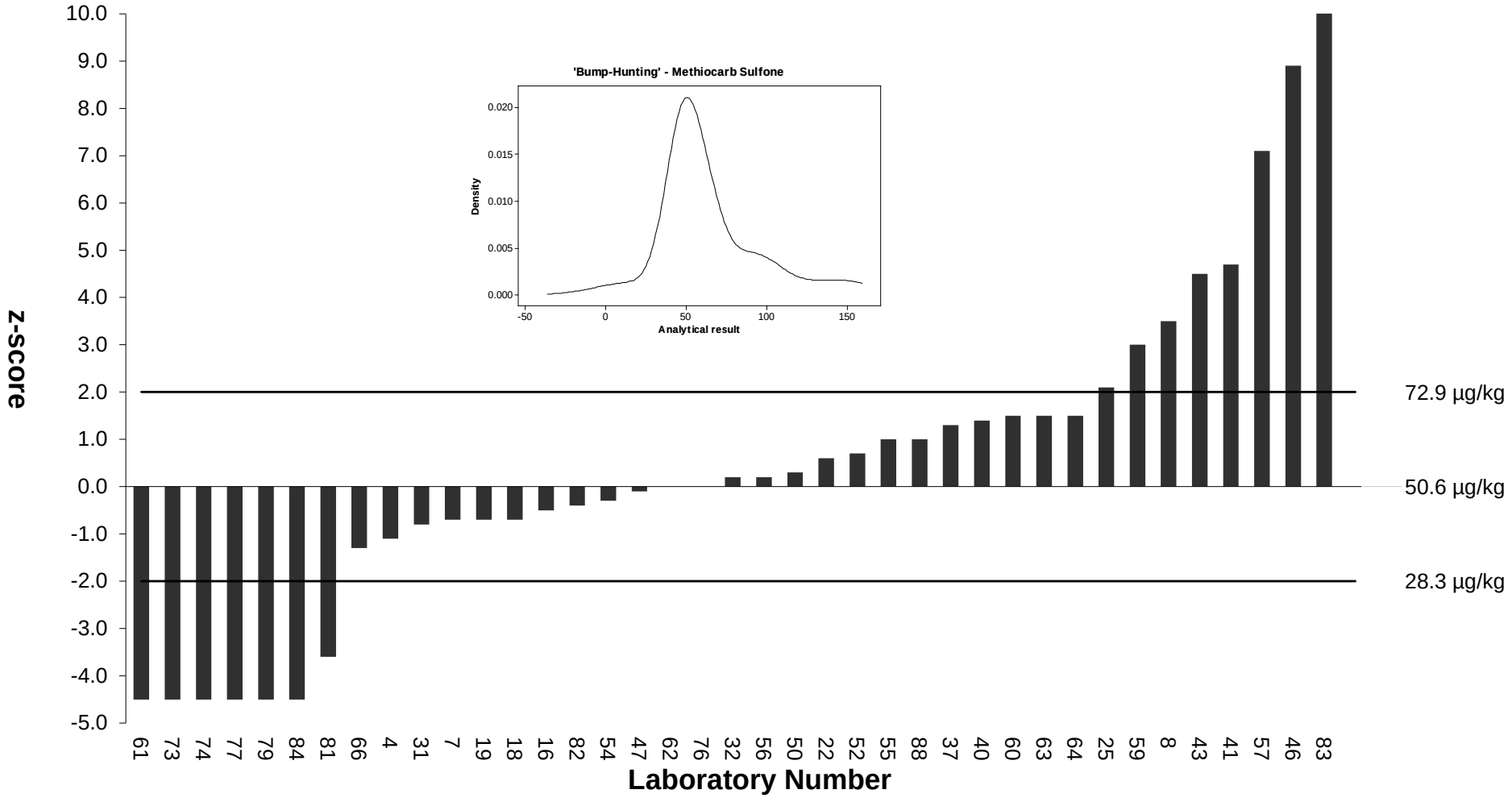

Figure 9: z-Scores for Methiocarb Sulfone

Insert shows the distribution of results

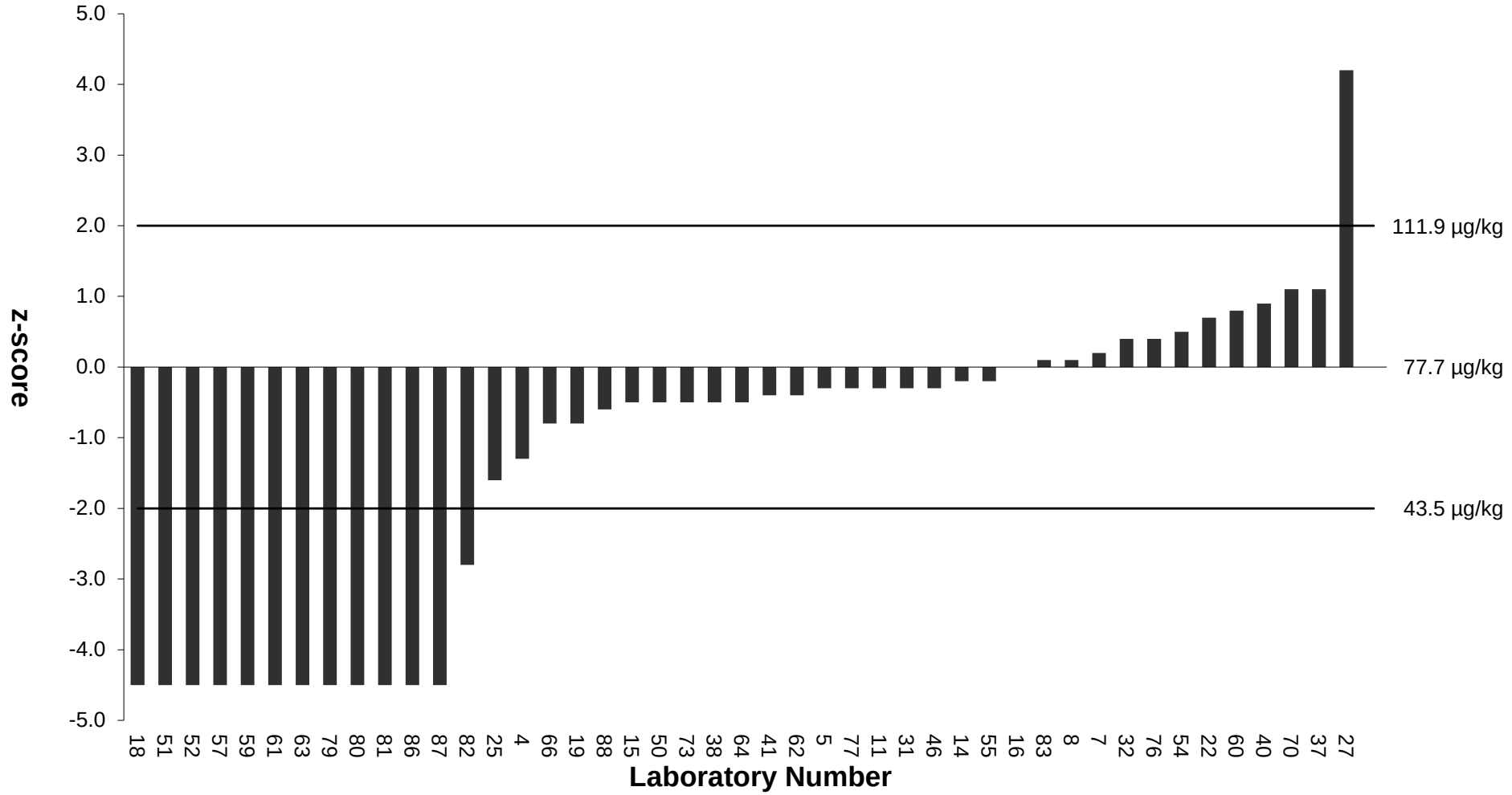

Figure 10: z-Scores for Oxydemeton-Methyl

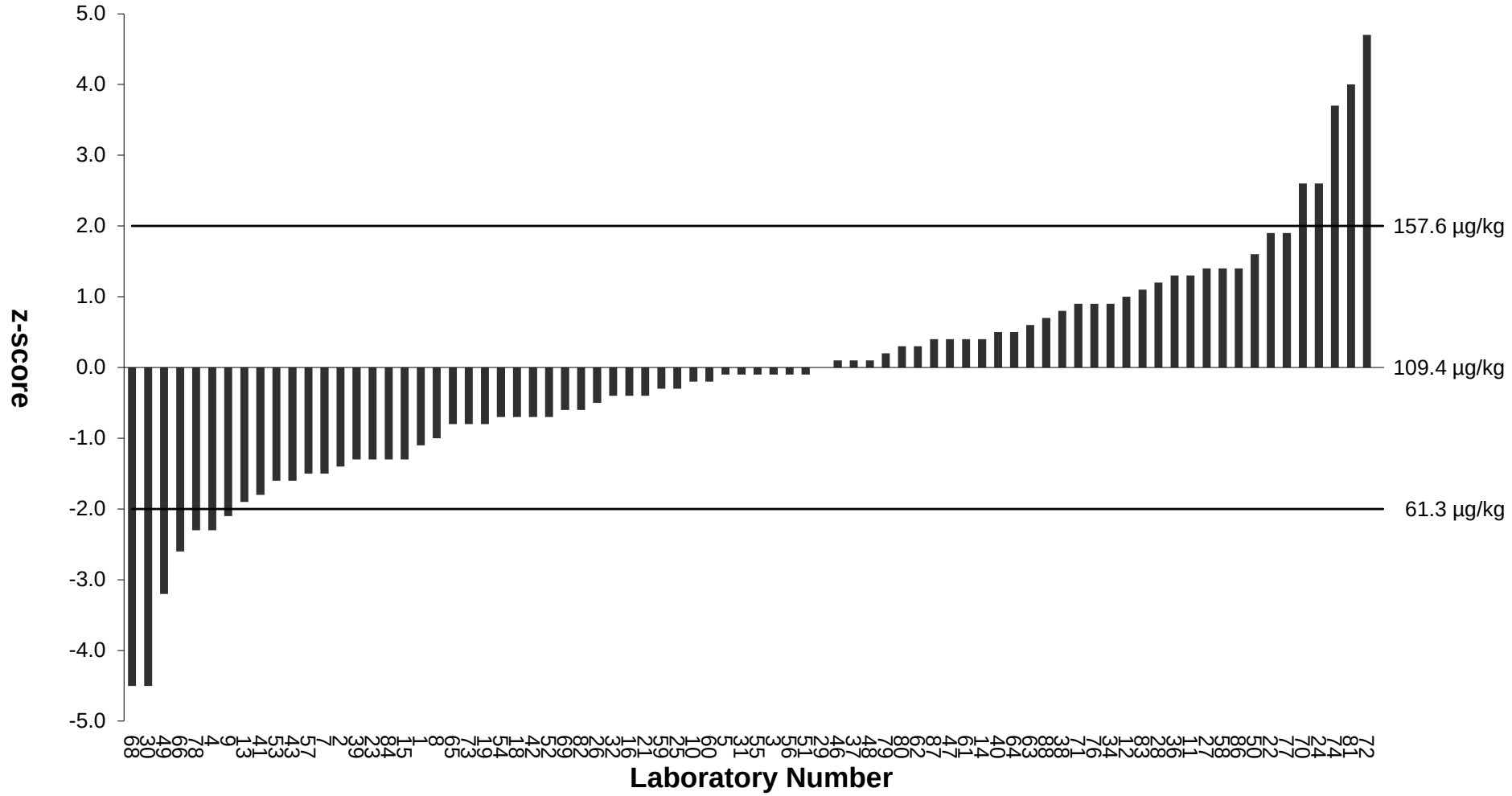

Figure 11: z-Scores for Pirimiphos-Methyl

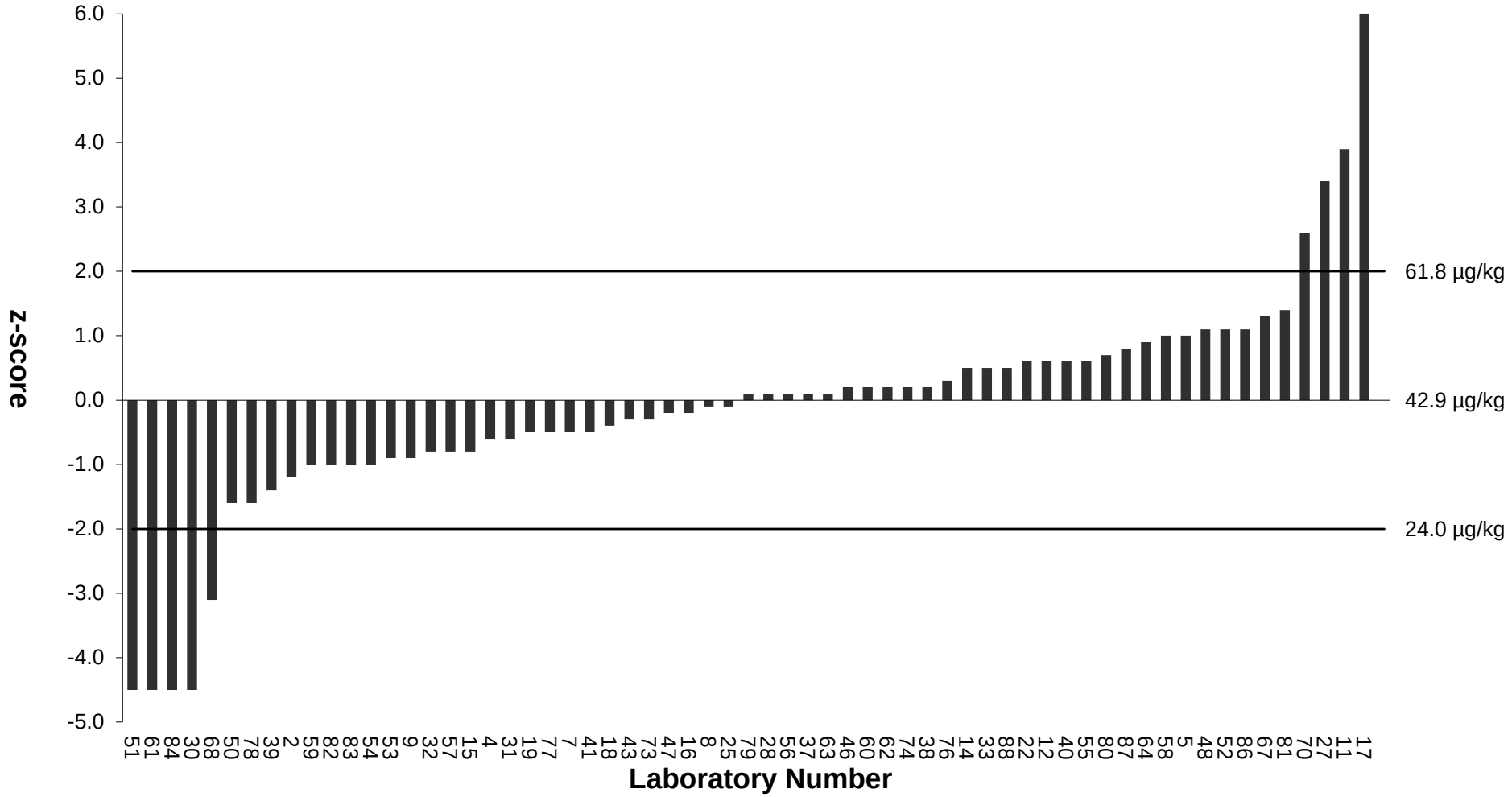

Figure 12: z-Scores for Propyzamide

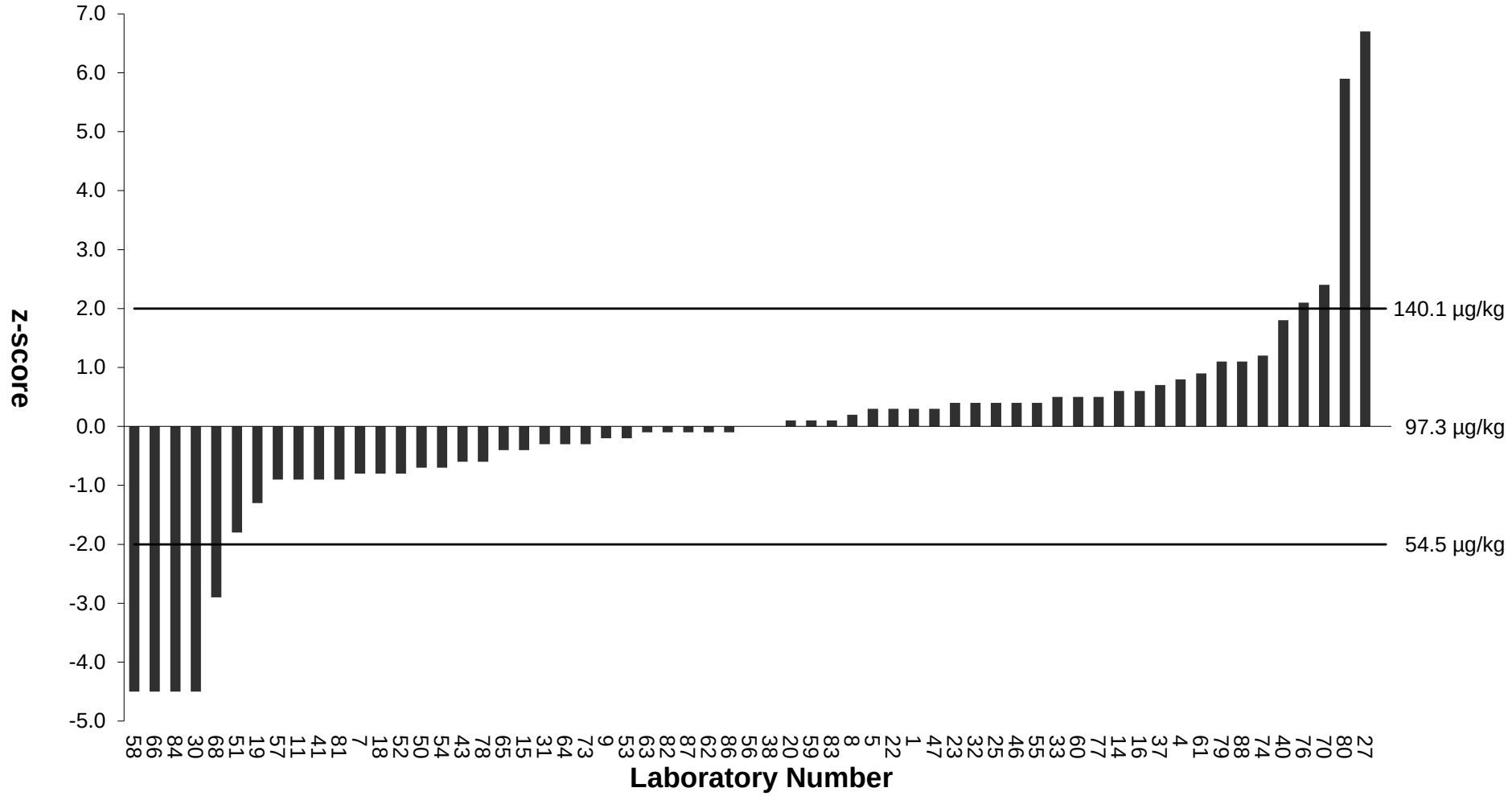

Figure 13: z-Scores for Thiamethoxam

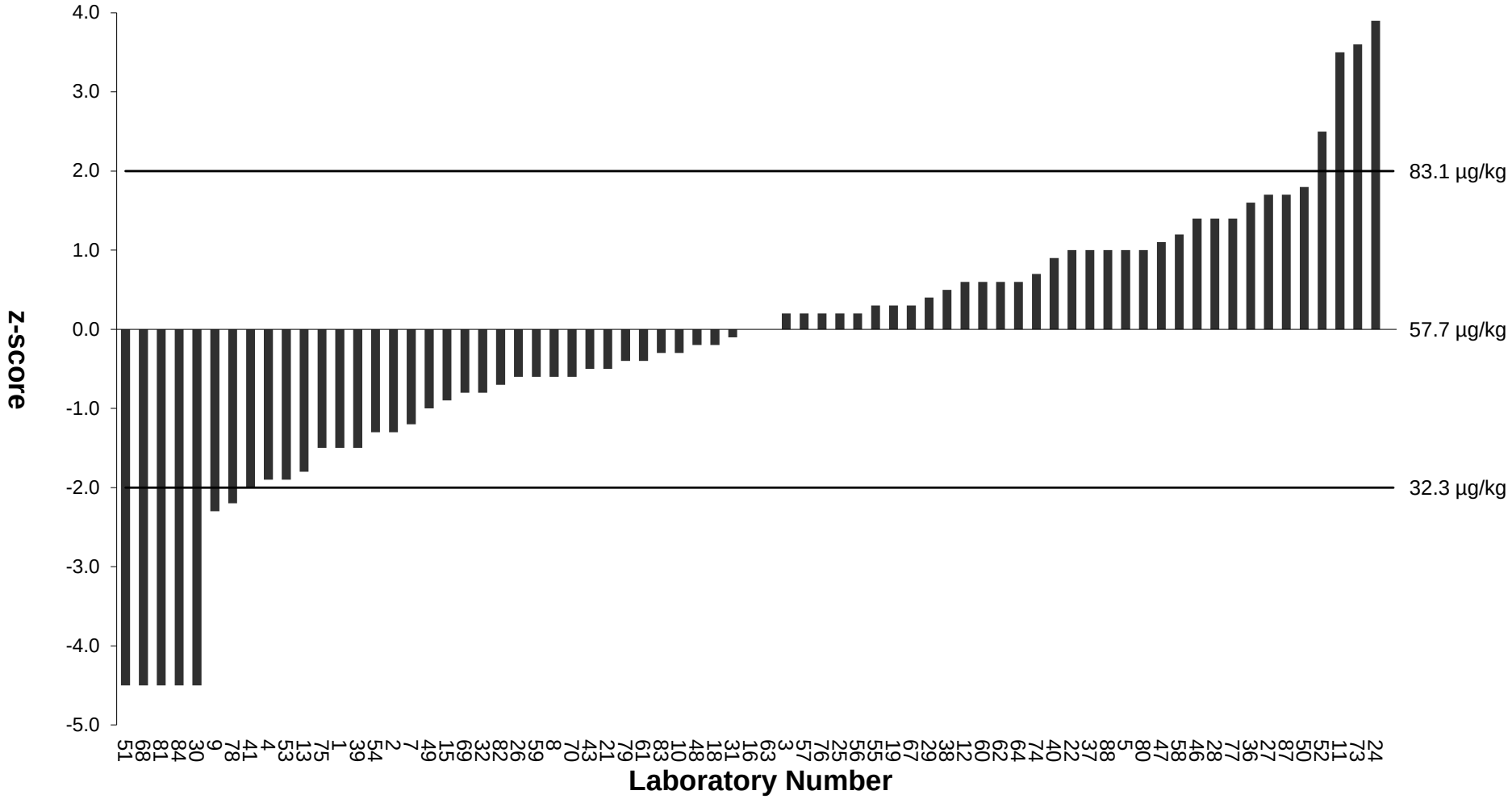

Figure 14: z-Scores for Tolclofos-Methyl

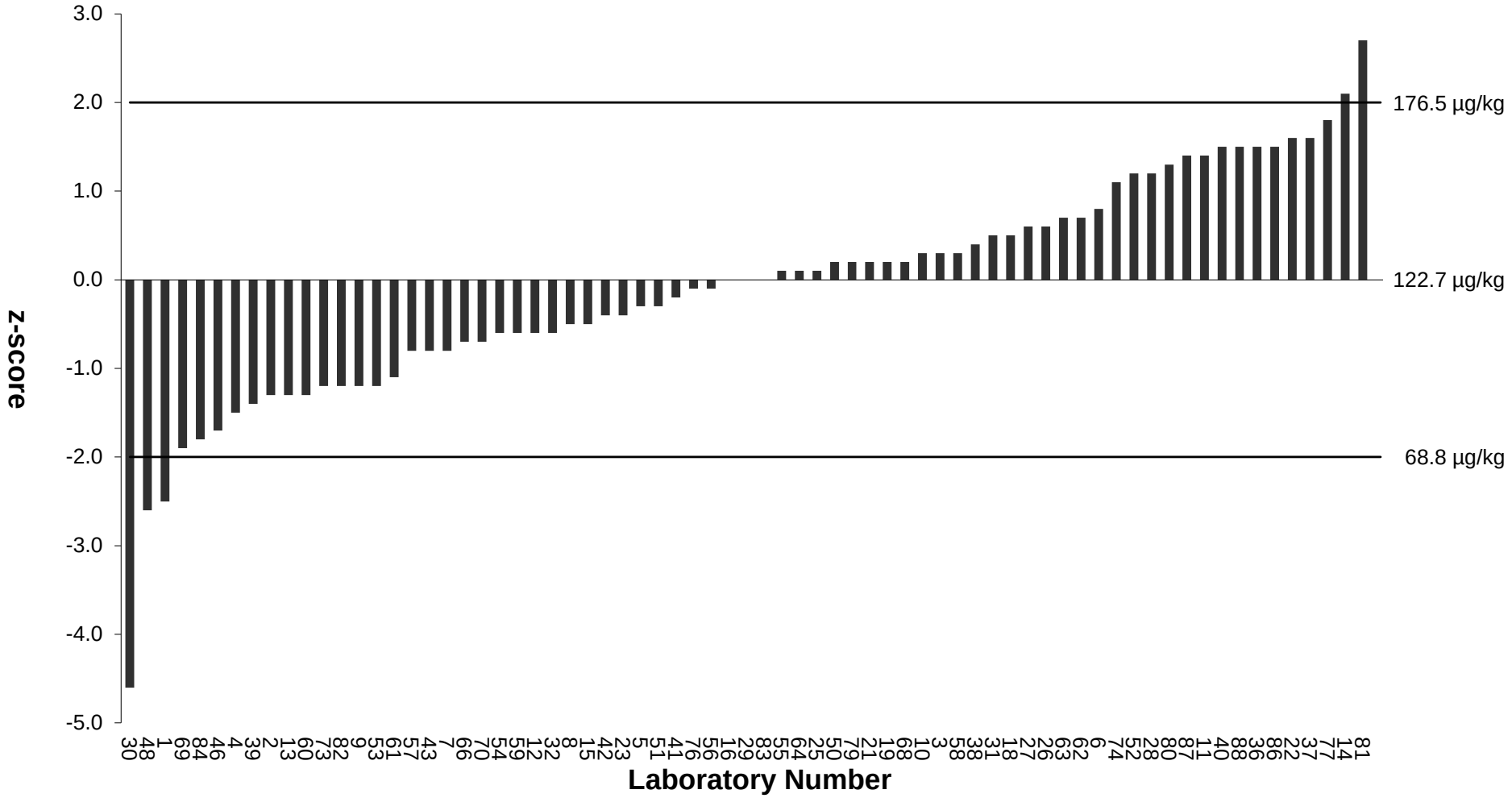

Figure 15: z-Scores for Trifluralin

APPENDIX I: Analytical Methods Used by Participants

Methods are tabulated according to the information supplied by participants, but some responses may have been combined or edited for clarity.

Accredited Method Used	laboratory number
yes	004 005 007 008 009 014 016 017 018 019 020 022 023 024 025 028 030 031 033 034 035 037 038 040 041 042 043 044 045 046 047 048 050 051 053 054 055 056 057 058 059 060 063 064 065 067 068 069 070 072 074 076 077 078 079 080 081 082 084 085 086 087
no	010 013 026 027 032 049 061 075

Method based on	laboratory number
International Standard	004 007 017 020 022 023 030 031 033 034 035 037 040 041 042 043 046 047 048 049 050 052 054 056 057 060 061 067 068 069 070 072 075 076 079 086 087
National Standard	008 024 025 028 044 051 058 059 065 074 080 084 085
Paper Published In An International Journal	005 014 053 078 082
In house method	009 010 013 016 018 019 026 027 032 038 045 055 063 081

Quoted percentage recovery measured in same analytical batch as test material	laboratory number
yes	004 005 007 008 009 014 017 018 019 020 022 023 024 025 027 028 031 032 033 034 035 037 038 040 042 043 044 045 046 048 049 051 052 053 055 056 059 060 061 063 064 065 068 069 070 072 075 076 078 079 080 081 082 084 085 086 087
no	016 026 030 041 047 057 058 067 074

If measured in this batch, at what stage was the spike added	laboratory number
prior to extraction	004 005 007 008 009 010 014 016 017 018 019 020 022 023 024 025 027 028 030 031 033 034 035 037 038 040 042 043 044 045 046 047 048 049 051 053 055 056 058 059 060 061 064 065 068 069 070 072 075 076 078 080 081 082 084 085 086 087
prior to clean up	032

If measured in this batch, at what stage was the spike added (continued)	laboratory number
prior to instrument measurement	063 079

Concentration of Spike (µg/kg)	laboratory number
≥1 - <5	086
≥5 - <10	018 045 058 072
≥10 - <25	005 019 022 033 038 047 048 055 056 063 065 075 078 085
≥25 - <50	014 042 043 044 051 053 059 069 070 082
≥50 - <100	004 007 008 016 020 023 024 027 031 032 035 037 040 046 049 057 060 061 064 076 079 084 087
≥100	009 010 017 028 030 034 068 081

Composition of Blank Commodity used for Spiking	laboratory number
lettuce blank provided	004 008 009 010 014 018 020 022 023 024 027 028 030 031 032 033 035 037 038 040 042 044 045 046 048 051 055 056 058 059 060 061 063 065 068 069 075 078 080 082 085 087
lettuce test material provided	017 034 043 064 070 072 076 079 081 084 086
lettuce	005 016 047 049 053 057
in house blank	053
laboratory blank	005

Calibration	laboratory number
standard addition	024 037 044 048 060
matrix-matched	004 005 007 008 014 016 018 022 023 027 028 031 037 038 040 046 047 049 050 051 056 057 058 059 063 064 065 068 069 070 074 075 076 081 082 084 085 087
solvent	009 026 033 037 041 067 072
multi-level	005 009 010 013 014 017 018 019 026 028 030 032 033 035 037 038 042 043 045 050 053 055 061 065 072 078 079 080 082 086
single-level	008 016 020 034 070

Internal Standard Added	laboratory number
yes	004 005 007 008 009 010 013 014 016 018 019 022 025 026 027 030 031 033 035 037 038 040 042 045 046 048 057 058 059 060 063 064 067 068 069 070 074 079 080 081 084 085 086 087
no	017 020 023 024 028 032 034 041 043 044 047 049 050 051 053 055 056 061 065 072 075 076 078 082

What Internal Standard was Used	laboratory number
anthracene	063
anthracene-d10	004
azobenzene	079
apha-BHC-d6	080
BNB	045
bromophos-methyl	009
carbaryl D7	018
chrysene-d12	042
diclofenthion	067
diffrent deuterated pesticides	070 081
HCB-13C	022
isoprocarb LC	019
isoproturon-d6,	004
mirex	060
nicarbazin	060
octachlorostyrene,	004
parathio-d10	069 080
PCB 31	057 074
PCB153	035
PCB 198	027
PCB 209	022
phenanthrene-d10	042
pirimicarb-D6	008
quinalphos	022
sulfotep	074
TDCPP	079
tetraphenylethylene	007
tributylphosphate	059

What Internal Standard was Used (continued)	laboratory number
triphenylmethane	019 087
TPP, Triphenylphosphate	005 013 018 030 033 038 040 058 060 063 068 074 081 085 086
TRIS	046
TrisCP	048
only to check extraction efficiency	037
no	014

GC Method: Sample Weight (g)	laboratory number
≥1 - <5	027 028 043 070
≥5 - <10	004 018 023 025 053 055 057 064 081 086 087
≥10 - <20	005 008 014 019 020 022 024 030 031 032 034 035 037 038 040 041 042 046 047 048 049 050 051 054 056 058 059 060 061 063 067 068 069 074 078 079 080 082 084 085
≥20 - <50	007 009 010 013 016 026 045 065 072
30-85g	017

GC Method: Extraction Solvent Components	laboratory number
1% acetic acid	034
acetone	005 017 020 047 051 059 063
acetonitrile	004 010 013 014 018 019 023 025 026 027 028 030 031 032 034 035 037 040 041 042 043 046 048 049 050 056 057 058 060 061 065 067 069 070 074 079 081 082 084 085 086 087
dichloromethane	005 017 020 024 047 063
ethyl acetate	007 008 009 016 038 053 055 068 072 078
petroleum ether	005 045 047

GC Method: Extraction pH Adjusted	laboratory number
yes	007 008 009 014 016 028 031 032 040 048 060 067 070 072 085
no	004 005 010 013 017 018 019 020 022 023 024 025 026 027 030 035 037 038 041 042 043 045 046 047 049 051 053 054 055 056 057 058 059 061 063 064 065 068 069 074 078 079 080 081 082 084 086 087

GC Method: Extraction Techniques Used	laboratory number
diatomaceous earth	024
liquid-liquid partition	010 013 017 022 026 028 038 045 047 051
macerate at room temperature	005 007 008 009 016 026 028 037 053 056 063 065 072 078
QuEChERS	004 014 018 019 023 025 027 030 031 032 034 035 037 040 041 042 043 046 048 049 050 054 055 057 058 060 061 067 068 069 070 074 079 080 081 082 084 085 086 087
ultra-sound extraction	020

GC Method: Sample Clean-up Technique	laboratory number
GPC/HPGPC	007 009 017 024
liquid-liquid partition	065
none	005 022 030 038 043 047 051 053 055 057 063 074 078 080 085
solid phase extraction (SPE) (column/cartridge)	010 013 020 026 028 032 056 065 068 072 081 084
solid phase extraction (SPE) (dispersive)	004 014 018 019 023 025 027 031 034 035 037 040 041 042 046 048 049 058 060 061 067 069 070 079 082 086 087
florisil	045
plus mini-silica gel column	037

GC Method: SPE Sorbent Type	laboratory number
C18	086
Envicarb/GCB	019 032 048 084
PSA	004 018 025 027 030 031 034 035 037 040 041 046 057 058 060 061 067 069 079 082 085
NH2	014
Mixed Mode	016 023 042 065 070 081
Carbon/NH2	028 056
ENVI-Carb/NH2	010 013 026
Florisil and Envicarb-LC/NH2	072
PSA & Magenesium Sulfate	068
PSA-C18	049
polymeric resin	024
silica gel	020

GC Method: GC Column Packing	laboratory number
50% methyl 50% phenyl polysiloxane	007 027 043
65% methyl 35% phenyl polysiloxane	045
95% methyl 5% phenyl polysiloxane	004 005 008 009 010 013 014 016 017 018 020 022 023 024 025 026 028 030 031 032 035 037 038 040 041 046 047 048 049 051 053 055 056 057 058 059 060 061 063 064 065 067 068 069 070 072 074 078 079 082 084 085 086 087
100% Dimethylpolysiloxane	042
14% cyanopropylphenyl, 86% methylpolysiloxane	019

GC Method: GC Detector Type	laboratory number
ECD	020 024 034 035 037 049 067 072
MS	007 009 010 013 017 019 020 022 023 025 026 028 037 040 041 042 043 045 046 053 056 057 060 061 064 067 069 074 086 087
MS-MS	004 005 008 014 016 018 022 027 030 031 032 038 047 048 049 050 051 054 055 058 059 063 065 068 070 078 079 080 082 084 085
ECD/NPD	009
FPD	034 037
NPD	067
PFPD	072

LC Method: Sample Weight (g)	laboratory number
≥1 - <5	027 043 070
≥5 - <10	004 018 023 025 033 053 055 057 059 064 081 086 087
≥10 - <20	005 007 008 014 019 020 022 030 031 032 035 037 038 040 041 042 046 047 049 050 051 054 056 058 060 061 063 068 074 075 076 078 079 080 082 084
≥20 - <50	009 016 034 044 065

LC Method: Extraction Solvent Components	laboratory number
acetic acid	053 078

LC Method: Extraction Solvent Components (continued)	laboratory number
acetone	022 044 051 063
acetonitrile	004 005 007 009 014 018 019 020 023 025 027 030 031 032 033 035 037 038 040 041 042 043 046 047 049 050 053 055 056 057 058 059 060 061 065 068 070 074 075 076 078 079 081 082 084 086 087
dichloromethane	022 063 064
ethyl acetate	008 016
petroleum ether	022
phosphate buffer	034

LC Method: Extraction pH Adjusted	laboratory number
yes	007 008 014 016 031 032 040 060 070 075 081
no	004 005 009 018 019 020 022 023 025 027 030 033 034 035 037 038 041 042 043 044 046 047 049 051 053 054 055 056 057 058 059 061 063 064 065 068 074 076 078 079 080 082 084 086 087

LC Method: Extraction Techniques Used	laboratory number
macerate at room temperature	008 016 037 056 063 065
QuEChERS	004 005 007 009 014 018 019 020 023 025 027 030 031 032 033 035 037 038 040 041 042 043 046 047 049 050 053 054 055 057 058 059 060 061 068 070 074 075 076 078 079 080 081 082 084 086 087
liquid-liquid partition	022 044 051 064

LC Method: Sample Clean-up Technique	laboratory number
liquid-liquid partition	044 065
none	004 007 019 022 025 027 030 043 051 053 055 057 063 074 080
solid phase extraction (SPE) (column/cartridge)	009 032 034 038 056 065 081 084
solid phase extraction (SPE) (dispersive)	005 014 018 020 023 031 033 035 037 040 041 042 046 047 049 058 060 061 068 070 075 076 078 079 082 086 087

LC Method: SPE Sorbent Type	laboratory number
alumina N	034
C18	081
Envicarb/GCB	032 084
GCNH2	056
Mixed Mode	023 042 065 070 075
NH2	014 044
PSA	005 018 020 030 031 035 037 038 040 041 046 047 057 058 060 061 076 078 079 082 086
PSA & Magnesium Sulfate	068
PSA-C18	049
Quechers	087

LC Method: HPLC Column Packing	laboratory number
C18	005 007 008 009 014 016 018 019 020 022 023 025 030 031 032 033 035 037 038 040 041 042 043 044 046 047 049 050 051 053 056 057 058 059 060 061 063 064 065 068 070 075 076 078 079 081 082 084 086 087
C8	004 034
Luna PFP	074

LC method: Mobile Phase Components	laboratory number
acetic acid	020 037 042
acetonitrile	014 020 025 033 035 042 044 046 047 068 081
ammonium acetate	008 020 025 056 058 082
ammonium formate	005 009 022 027 030 033 047 049 050 053 063 065 068 070 075 078 087
formic acid	005 033 047 050 061 065 068 078 079
methanol	005 007 008 009 016 018 019 020 022 025 032 034 037 040 043 050 051 053 058 059 061 063 064 065 068 070 075 078 079 082 084
phosphate buffer	034
water	004 005 014 016 020 022 023 025 031 037 038 040 041 042 046 047 050 053 055 057 060 063 064 065 068 070 074 075 076 078 079 082

LC Method: Detector Type	laboratory number
fluorescence	034 035
MS	020 042 047
MS-MS	004 005 007 008 009 014 016 018 019 022 023 025 027 030 031 032 033 037 038 040 041 043 044 049 050 051 053 054 055 056 057 058 059 060 061 063 064 065 068 070 074 075 076 078 079 080 081 082 084 086 087
UV/Vis	046

Carbendazim

Method Principle	laboratory number
GC	017
LC	004 005 007 008 009 014 018 019 020 022 027 030 031 032 033 037 038 040 041 043 044 046 047 049 050 053 054 055 056 057 058 059 060 061 063 064 070 074 075 076 079 080 081 082 087

Identification by Mass Spectrometry	laboratory number
yes	004 005 007 008 009 014 017 018 019 020 022 027 030 031 032 033 037 038 040 041 043 044 046 047 049 050 053 054 055 056 057 058 059 060 061 063 064 070 074 075 076 079 080 081 082 087

Cyfluthrin (sum)

Method Principle	laboratory number
GC	002 003 004 005 007 008 009 010 013 014 018 020 022 026 028 030 031 032 035 037 038 040 041 043 046 047 048 050 051 054 056 057 058 059 063 064 065 067 070 072 076 079 080 081 082 086 087
LC	049 053

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 014 018 022 026 028 030 032 038 040 041 043 046 047 048 049 050 051 053 054 056 057 058 059 063 064 065 067 070 076 079 080 081 082 086 087
no	020 031 035 037 072

Deltamethrin

Method Principle	laboratory number
GC	001 004 005 007 008 009 014 018 019 020 022 028 030 031 035 037 038 041 043 048 050 051 053 054 055 056 057 058 063 064 065 067 070 072 074 079 080 081 082 084 087
LC	032 040 046 047 049 059 076 086

Identification by Mass Spectrometry	laboratory number
yes	004 005 007 008 009 014 018 019 022 028 030 031 032 038 040 041 043 046 047 048 049 050 051 053 054 055 056 057 058 059 063 064 065 067 070 074 076 079 080 081 082 084 086 087
no	001 020 035 037 072

Fenarimol

Method Principle	laboratory number
GC	002 003 005 007 009 010 013 014 018 019 026 028 030 031 032 038 040 043 046 047 048 053 054 055 056 057 058 060 061 067 068 069 074 079 081 087
LC	004 008 022 027 033 037 041 049 050 051 059 063 064 070 075 076 080 082 084 086

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 014 018 019 022 026 027 028 030 031 032 033 037 038 040 041 043 046 047 048 049 050 053 054 055 056 057 058 059 060 061 063 064 067 068 069 070 074 075 076 079 080 081 082 084 086 087

Fenitrothion

Method Principle	laboratory number
GC	001 002 003 004 005 007 008 009 010 013 018 022 024 026 027 028 030 031 032 035 037 038 040 041 043 048 050 051 053 055 056 057 058 061 063 064 065 067 069 070 072 074 079 080 081 084 086 087
LC	046 054 059

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 018 022 024 026 027 028 030 031 032 038 040 041 043 046 048 050 051 053 054 055 056 057 058 059 061 063 064 065 067 069 070 074 079 080 081 084 086 087
no	001 035 037 072

gamma-HCH (gamma-Hexachlorocyclohexane/Lindane)

Method Principle	laboratory number
GC	001 002 004 007 008 009 014 018 019 022 024 027 028 030 031 032 037 038 040 041 042 043 045 049 050 053 054 055 056 057 059 060 063 064 065 070 072 076 079 080 081 082 086 087

Identification by Mass Spectrometry	laboratory number
yes	002 004 007 008 009 014 018 019 022 024 027 028 030 031 032 038 040 041 042 043 045 050 053 054 055 056 057 059 060 063 064 065 070 076 079 080 081 082 086 087
no	001 037 049 072

Isoprocarb

Method Principle	laboratory number
GC	002 003 009 010 013 018 022 026 032 046 053 056 057 060 063 065 074
LC	004 007 008 014 020 031 035 037 038 040 041 043 049 051 054 055 058 064 076 081

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 007 008 009 010 013 014 018 020 022 026 031 032 037 038 040 041 043 046 049 051 053 054 055 056 057 058 060 063 064 065 074 076 081
no	035

Lenacil

Method Principle	laboratory number
GC	002 014 022 028 032 040 047 056 074 079 080 081 082 084
LC	001 004 007 008 027 031 037 038 041 043 046 050 053 054 055 057 059 060 061 063 064 076 087

Identification by Mass Spectrometry	laboratory number
yes	001 002 004 007 008 014 022 027 028 031 032 037 038 040 041 043 046 047 050 053 054 055 056 057 059 060 061 063 064 074 076 079 080 081 082 084 087

Methiocarb Sulfone

Method Principle	laboratory number
GC	063
LC	004 007 008 018 019 022 031 032 037 040 041 043 046 047 050 054 055 056 057 059 060 064 076 081 082

Identification by Mass Spectrometry	laboratory number
yes	004 007 008 018 019 022 031 032 037 040 041 043 046 047 050 054 055 056 057 059 060 063 064 076 081 082

Oxydemeton-Methyl (Demeton-S-Methyl Sulfoxide)

Method Principle	laboratory number
LC	004 005 007 008 014 019 027 031 032 037 038 040 041 046 050 054 055 060 064 070 076 082

Identification by Mass Spectrometry	laboratory number
yes	004 005 007 008 014 019 022 027 031 032 037 038 040 041 046 050 054 055 060 064 070 076 082

Pirimiphos-methyl

Method Principle	laboratory number
GC	001 002 003 004 005 007 008 009 010 013 014 018 019 023 024 026 028 030 031 032 037 038 040 042 043 047 048 050 052 053 055 056 057 058 060 063 064 065 069 072 074 079 081 084 086
LC	022 027 041 046 049 051 054 059 061 070 076 080 082 087

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 014 018 019 022 023 024 026 027 028 030 031 032 038 040 041 042 043 046 047 048 049 050 051 052 053 054 055 056 057 058 059 060 061 063 064 065 069 070 074 076 079 080 081 082 084 086 087
no	001 037 072

Propyzamide

Method Principle	laboratory number
GC	002 008 009 014 017 018 019 028 030 031 032 038 040 041 043 047 048 053 054 055 056 057 060 063 064 067 074 079 080 081 082 087
LC	004 005 007 022 027 033 037 046 050 059 068 070 076 086

Identification by Mass Spectrometry	laboratory number
yes	002 004 005 007 008 009 014 017 018 019 022 027 028 030 031 032 033 037 038 040 041 043 046 047 048 050 053 054 055 056 057 059 060 063 064 067 068 070 074 076 079 080 081 082 086 087

Thiamethoxam

Method Principle	laboratory number
GC	056 081
LC	001 004 005 007 008 009 014 018 019 020 022 027 030 031 032 033 037 038 040 041 043 046 047 050 051 053 054 055 057 059 060 061 063 064 065 068 070 074 076 079 080 082 086 087

Identification by Mass Spectrometry	laboratory number
yes	001 004 005 007 008 009 014 018 019 020 022 027 030 031 032 033 037 038 040 041 043 046 047 050 051 053 054 055 056 057 059 060 061 063 064 065 068 070 074 076 079 080 081 082 086 087

Tolclofos-methyl

Method Principle	laboratory number
GC	001 002 003 004 007 008 009 010 013 018 019 024 026 028 030 031 032 038 040 043 046 048 050 053 055 056 057 058 060 061 063 067 069 070 074 079 080 082 087
LC	005 022 027 037 041 047 049 054 059 064 075 076

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 018 019 022 024 026 027 028 030 031 032 037 038 040 041 043 046 047 048 049 050 053 054 055 056 057 058 059 060 061 063 064 067 069 070 074 075 076 079 080 082 087
no	001

Trifluralin

Method Principle	laboratory number
GC	001 002 003 004 005 007 008 009 010 013 014 018 019 022 026 027 028 030 031 032 037 038 040 041 042 043 046 048 050 051 053 054 055 056 057 058 059 060 061 063 064 068 069 070 074 076 079 080 081 082 084 086 087

Identification by Mass Spectrometry	laboratory number
yes	002 003 004 005 007 008 009 010 013 014 018 019 022 026 027 028 030 031 032 037 038 040 041 042 043 046 048 050 051 053 054 055 056 057 058 059 060 061 063 064 068 069 070 074 076 079 080 081 082 084 086 087
no	001

APPENDIX II: FAPAS SecureWeb, Protocol and Contact Details

1. FAPAS SECUREWEB

Access to the secure area of our website is only available to participants in our proficiency tests. Please contact us if you require a UserID and Password. FAPAS SecureWeb allows participants to:

- Obtain their laboratory numbers for the proficiency tests in which they have participated.
- View the results they submitted in past and current proficiency tests.
- Submit their results and methods for current tests.
- Review future tests they have ordered.
- Order proficiency tests and quality control materials.
- Freely download copies of reports (PDF file), of proficiency tests in which they have participated.
- View charts of their z-scores obtained in previous FAPAS® proficiency tests.

2. PROTOCOL

The Protocols [3, 4] set out how FAPAS® is organised. Copies can be downloaded from our website.

3. CONTACT DETAILS

This report was prepared and authorised on behalf of FAPAS by Aiga Ozolina (Round Coordinator). Participants with any comments or concerns about this proficiency test should contact:

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