

AOAC INTERNATIONAL

Email: Cannabis_PT@AOAC.org

CH01 Hemp Proficiency Testing Program

Pesticides

PT Round # - Pilot

Shipment Date 05-02-22

Preliminary Report Issue Date: 07-27-22

AOAC INTERNATIONAL
2275 Research Blvd, Ste 300
Rockville, MD 20850



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This report has been authorized by
Shane Flynn, Senior Director
Proficiency Testing

Shane P Flynn

1.0 Introduction

Test materials for the CH01 Hemp Proficiency Testing Program were shipped to participants on May 2, 2022. Each laboratory was given a site identification number in order to maintain confidentiality. Instructions for Analysis and instructions on how to report results within the AOAC Proficiency Testing website was provided to the participants. Participants were instructed to analyze the test materials according to procedures routinely used in their laboratories. Labs had 21 days to analyse and report. The results were to be recorded and submitted to AOAC INTERNATIONAL by May 24, 2022. This is a preliminary report and is subject to change after feedback is received. A final Report will be issued once feedback has been received and addressed.

2.0 Test Design

The matrix selected for the CH01-Pilot round was a sativa-dominant hybrid and indoor grown hemp flower. The matrix was prepared according to SOPs which included the use of a clean stainless-steel grinder and medium-sized screen to create an “oregano”-sized ground hemp flower. After grinding, the material was homogenized thoroughly by mixing.

Sample 2-Red contains spiked pesticide compounds and was evaluated for six pesticide residues. Table 1 below provides the list of pesticides included in Sample 2- Red and provides the spiked concentration of each pesticide.

Table 1:

Spiked Compound	CAS Number	Spike Concentration (ng/g, ppb)
Azoxystrobin	131860-33-8	120
Carbofuran	1563-66-2	1200
Dimethoate	60-51-5	1200
Malathion	121-75-5	300
Metalaxyl	57837-19-1	1200
Thiamethoxam	153719-23-4	300

3.0 Homogeneity

Three samples were analyzed in duplicate to provide assurance that samples were homogeneous within and across the samples prepared. The criteria for assessing homogeneity testing were that the percent recoveries for each spiked target fall between 50% to 150% with total CVs below 15%. All six spiked pesticides met all homogeneity criteria. Future rounds will have tightened percent recoveries.

4.0 Preparation of Test Materials

Each set of test materials consisted of one sample containing approximately 2.5 grams of dried hemp. Sample 2-Red samples were prepared to provide pesticide residue ground hemp samples for evaluation by participants. Prior to sample creation, high-level stock solutions were created from neat pesticides with a purity >95% in volumetric flasks using acetonitrile (ACN). A high-level dichloromethane (DCM) spike solution was prepared using the high-level stock solutions. The spike solution was verified by LC-MS/MS using a second source calibration.

Samples were prepared and shipped by the following Laboratory:

signature
science[®] LLC

8329 North Mopac Expressway

Austin, TX 78759

5.0 Analyses Requested

Sample 2-Red was to be analyzed for all pesticide residues below that are relevant to the participating laboratory. Results should only be reported for pesticide residues listed below.

Pesticides Residue	CAS#	Pesticides Residue	CAS#
Abamectin (Avermectins: B1a & B1b)	71751-41-2	Flonicamid	158062-67-0
Acephate	30560-19-1	Fludioxonil	131341-86-1
Acequinocyl	57960-19-7	Fluopyram	658066-35-4
Acetamiprid	135410-20-7	Flurprimidol	56425-91-3
Aldicarb	116-06-3	Hexythiazox	78587-05-0
Allethrin	584-79-2	Imazalil	35554-44-0
Ancymidol	12771-68-5	Imidacloprid	138261-41-3
Azadirachtin	108168-76-9	Iprodione	36734-19-7
Azoxystrobin	131860-33-8	Kinoprene	37882-31-8
Benzovindiflupyr	1072957-71-1	Kresoxim-methyl	143390-89-0
Bifenazate	149877-41-8	Malathion	121-75-5
Bifenthrin	82657-04-3	Metalaxyl	57837-19-1
Boscalid	188425-85-6	Methiocarb	2032-65-7
Buprofezin	69327-76-0	Methomyl	16752-77-5
Captan	133-06-2	Methoprene	40596-69-8
Carbaryl	63-25-2	Methyl parathion	298-00-0
Carbofuran	1563-66-2	Mevinphos	7786-34-7
Chlorantraniliprole	500008-45-7	MGK-264	113-48-4
Chlordane	57-74-9	Myclobutanil	88671-89-0
Chlorfenapyr	122453-73-0	Naled (Systhane) (Dibrom)	300-76-5
Chlormequat chloride	999-81-5	Novaluron	116714-46-6
Chlorpyrifos	2921-88-2	Oxamyl	23135-22-0
Clofentezine	74115-24-5	Paclobutrazol	76738-62-0
Clothianidin	21088-92-5	Pentachloronitrobenzene (Quintozene)	82-68-8
Coumaphos	56-72-4	Permethrin (mix of isomers)	52645-53-1
Cyantraniliprole	736994-63-1	Phenothrin (d-phenothrin)	26002-80-2
Cyfluthrin (Baythroid)	68359-37-5	Phosmet (Imidan)	60207-90-1

Cypermethrin	52315-07-8	Phosmet (oxon)	3735-33-9
Cyprodinil	121552-61-2	Piperonyl butoxide	55218
Daminozide	1596-84-5	Pirimicarb	23103-98-2
Deltamethrin	52918-63-5	Prallethrin (mix of isomers)	23031-36-9
Diazinon	333-41-5	Propiconazole (tilt)	60207-90-1
Dichlorvos	62-73-7	Propoxur (Baygon)	114-26-1
Dimethoate	60-51-5	Pyraclostrobin	175013-18-0
Dimethomorph	110488-70-5	Pyrethrin (mix of isomers)	8003-34-7
Dinotefuran	165252-70-0	Pyridaben	96489-71-3
Dodemorph	1593-77-7	Resmethrin	10453-86-8
Endosulfan I (alpha)	959-98-8	Spinetoram	187166-40-1
Endosulfan II (beta)	33213-65-9	Spinosad (mixture of A and D)	168316-95-8
Endosulfan sulfate	1031-07-8	Spirodiclofen	148477-71-8
Ethephon	16672-87-0	Spiromesifen	283594-90-1
Ethoprophos (Prophos)	13194-48-4	Spirotetramat	203313-25-1
Etofenprox	80844-07-1	Spiroxamine	118134-30-8
Etoazole	153233-91-1	Tebuconazole	107534-96-3
Etridiazole (Terrazole)	2593-15-9	Tebufenozide	112410-23-8
Fenhexamid	126833-17-8	Teflubenzuron	83121-18-0
Fenoxycarb	79127-80-3	Tetrachlorvinphos	961-11-5
Fenpyroximate (mix of isomers)	111812-58-9	Tetramethrin	7696-12-0
Fensulfothion	115-90-2	Thiacloprid	111988-49-9
Fenthion	55-38-9	Thiamethoxam	153719-23-4
Fenvalerate (Sanmarton)	51630-58-1	Thiophanate-methyl	23564-05-8
Fipronil	120068-37-3	Trifloxystrobin	141517-21-7

The participants had the option of marking the analysis as Not Tested for any pesticide not routinely tested by their laboratory. This designation was submitted to AOAC®. Information on the method used for each analyses was requested.

6.0 Calculation and Interpretation of z-scores:

For each individual result, a z-score was calculated as follows:

$$z = \frac{(x - X)}{s}$$

where:

z = the z score (standard score)

x = the reported value of analyte

X = the assigned value, the best estimate of the “true” Concentration

s = the estimate of variation (standard deviation)

The robust procedure from *ISO 13528:2015 (E), Statistical methods for use in proficiency testing by interlaboratory comparisons* is used in processing the result data. Robust statistics relies on medians rather than means and uses more information from the central than from the outlying observations.

The assigned value used was based on the median of four “Expert” laboratories. The standard deviation used was 20% of the assigned value, the SD represents the use of the Horowitz equation. Measurement uncertainty (standard uncertainty of the assigned value) has also been provided.

The following interpretation of z-scores for each individual test result is provided in of ISO/ IEC Standard 17043:2010(E) Conformity Assessment - General requirements for proficiency testing schemes common examples of application of z-scores:

<u>Result Obtained</u>	<u>Rating</u>
$|z| \leq 2$	Satisfactory
$2 < |z| < 3$	Questionable
$|z| \geq 3$	Unsatisfactory

Calculations for z scores based on the data presented in the results sheet might be slightly different from the z-scores assigned by AOAC. The z-scores assigned by AOAC are based on calculations that may use more significant figures than is possible to display on the results sheet.

7.0 General Discussion of Results

Confidentiality of results has been maintained by issuing site identification codes to the participants. Results in reports have only been identified by the site identification code. Results were submitted by both Participating Laboratories and participating Expert Laboratories. There were four Expert Laboratories this round. Test materials were exposed to the same shipping conditions for both types of laboratories. This report includes information only for the pesticides listed in Section 5.0. Some pesticides had fewer participants submitting results because some of the laboratories do not routinely test all the pesticides.

Each laboratory is responsible for the stability of the compounds in the extract covering the time between extraction and analysis under the storage conditions in that laboratory. Stability will be dependent on the solvent the extract is in, the storage conditions, and the type of container used to store the extract. It is recommended that the analysis proceed as quickly as possible after extraction. Z-scores have been calculated for those pesticides where the following criteria were met for the specific analyte in the specific sample; when the results from at least three out of the four Expert laboratories are within 2 standard deviations of the target concentration (assigned value), or if only three of the four Expert laboratories analyze for a specific residue then two of the three Expert laboratories must be within 2 standard deviations of the target concentration, or if only two

Expert laboratories analyze for a residue, then both Expert laboratories must be within 2 standard deviations of the target concentration. All analytes met these criteria. The target concentration was used as the assigned value. The standard deviation was 20% of the target concentration. Z-scores were calculated for the following pesticides Azoxystrobin, Carbofuran, Dimethoate, Malathion-methyl, Metalaxyl, and Thiamethoxam.

Appendix A is included in this report to show participating laboratory's reported result, method used, assigned value, standard deviation, median, min, max, z-score, and measurement uncertainty. Each laboratory should use the information in Appendix A to determine areas of improvement. If a participating laboratory received a Not-Detected, it is up to that laboratory to evaluate the result based on its own limit of quantification (LOQ). Appendix B is included to show all incurred and additional residues reported by participants. Appendix C displays the reported values, method used for all participating labs and their corresponding z-scores. The same information is provided for the Expert labs. Each laboratory should use the information in Appendix A, Appendix B, and Appendix C to determine areas of improvement. Appendix D Graphs illustrate the results of all the Participant Laboratories versus the Expert Laboratories versus the targeted value. Appendix E is Instructions for Analysis, and Appendix F Homogeneity.

Measurement uncertainty, or in the case with these statistics, "standard uncertainty of the assigned value" has been included. Please note that participant's z-scores are now displayed in the second to last data column.

If a participant would like to appeal against the assessment of their performance in this proficiency testing scheme please contact staff at Cannabis_PT@AOAC.org

Individual laboratory results are in Appendix A

8.0 Distribution of Results Plots

The distribution of results plots provides information on the distribution of results for each compound. The plots illustrate the results of all the participant laboratories versus the reference laboratories versus the targeted value. Some of the plots include the statement "reference labs are indicated by squares", and there are no squares on the plot. If the reference laboratories did not test for a specific analyte, their representative squares are not indicated on the plots, even though they are mentioned in the legends. At the advice of an expert in statistical graphics and design of data visualization, changes have been made to improve the plots. Data from the Subscribing Laboratories is displayed as individual data points with no connecting line. The target value is displayed with a dashed horizontal reference line. Reference labs are indicated by squares. If a laboratory marked a compound as "not tested," it was not included on the graph. The key to the graph identifies each line. Only data that fell within a z- score value of ± 5 have been included in the graphs. As AOAC® continues to improve its reporting format, changes may occur.

Appendix A

CH01 Pesticide Results Ship Date: 5/1/2022

Site	Sample Test	Reported result (ng/kg)	Number of reported results	Min result	Mean of results	Median result	Max result	Assigned value	Target SD	Median of Ref Labs	Z-score	Standard uncertainty of the assigned value	Notes
	Red Azoxystrobin	138.0000	13	0.0525	107.673	117.170	149.000	120.000	24.0000	133.096	0.75	8.321	
	Red Carbofuran	1134.0000	12	0.2321	706.859	793.500	1200.00	1200.00	240.000	1029.02	-0.28	86.603	
	Red Dimethoate	1064.0000	13	0.2490	795.036	988.600	1160.00	1200.00	240.000	1027.86	-0.57	83.205	
	Red Malathion-methyl	239.0000	13	0.0690	195.435	224.390	318.200	300.000	60.0000	272.797	-1.02	20.801	
	Red Metalaxyl	1359.0000	13	0.3633	843.667	1042.11	1359.00	1200.00	240.000	1071.46	0.66	83.205	
	Red Thiamethoxam	253.0000	13	0.0836	192.566	224.680	299.000	300.000	60.0000	242.340	-0.78	20.801	

Sample Report

Appendix B

Additional Pesticide Residues Detected in the May 1, 2022 Samples

Sample	CH01 Pesticide Residue	Values Reported (ng/kg)	Number of Participants Reporting	Value Reported by 184685 (ng/kg)
1 (Blank)	Acequinocyl	4036.0000	1	None
1 (Blank)	Bifenthrin	147.0000 98.5000 76.2260 91.3000 130.0000 115.1120 116.0000 48.0600 58.2000 78.0000 101.0000	11	98.5000
1 (Blank)	Daminozide	56.2000	1	None
1 (Blank)	Myclobutanil	60.4000 62.0000 37.4470 26.6000 8.0000 51.2210 58.2456 45.8200 54.3000 39.0000 28.0000	11	None
1 (Blank)	Prallethrin (mix of isomers)	67.3000	1	None
1 (Blank)	Spiromesifen	7.0420	1	None

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Azoxystrobin

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
SOP.T.40.102.FL	.	.	103.1000	-0.7042	8.3205
LCMSMS	.	.	124.0000	0.1667	8.3205
LC/MS/MS	.	.	142.1910	0.9246	8.3205
MF-CHEM-13	.	.	149.0000	1.2083	8.3205
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.0525	-4.9978	.	.	8.3205
No Method Provided	58.0000	-2.5833	.	.	8.3205
LCMS	88.0300	-1.3321	.	.	8.3205
LC-MS-MS	92.0000	-1.1667	.	.	8.3205
PT-METH-040	114.0000	-0.2500	.	.	8.3205
LC-MS/MS	117.1700	-0.1179	.	.	8.3205
LC-MS/MS	125.5000	0.2292	.	.	8.3205
LC-MS/MS	138.0000	0.7500	.	.	8.3205
Sop-024	148.7100	1.1963	.	.	8.3205

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Carbofuran

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
LCMSMS	.	.	876.0000	-1.3500	86.6025
LC/MS/MS	.	.	1006.5300	-0.8061	86.6025
SOP.T.40.102.FL	.	.	1051.5000	-0.6188	86.6025
MF-CHEM-13	.	.	1200.0000	0.0000	86.6025
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.2321	-4.9990	.	.	86.6025
LC-MS/MS	127.7500	-4.4677	.	.	86.6025
No Method Provided	400.0000	-3.3333	.	.	86.6025
LC-MS/MS	411.8500	-3.2840	.	.	86.6025
LCMS	557.4400	-2.6773	.	.	86.6025
LC-MS-MS	711.0000	-2.0375	.	.	86.6025
LC-MS/MS	1006.0000	-0.8083	.	.	86.6025
LC-MS/MS	1134.0000	-0.2750	.	.	86.6025

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Dimethoate

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
SOP.T.40.102.FL	.	.	935.3000	-1.1029	83.2050
LC/MS/MS	.	.	1025.7200	-0.7262	83.2050
LCMSMS	.	.	1030.0000	-0.7083	83.2050
MF-CHEM-13	.	.	1140.0000	-0.2500	83.2050
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.2490	-4.9990	.	.	83.2050
LC-MS/MS	116.0000	-4.5167	.	.	83.2050
No Method Provided	272.0000	-3.8667	.	.	83.2050
LC-MS-MS	738.0000	-1.9250	.	.	83.2050
LCMS	817.7000	-1.5929	.	.	83.2050
LC-MS/MS	988.6000	-0.8808	.	.	83.2050
LC-MS/MS	1047.9000	-0.6337	.	.	83.2050
LC-MS/MS	1064.0000	-0.5667	.	.	83.2050
PT-METH-040	1160.0000	-0.1667	.	.	83.2050

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Malathion-methyl

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
LCMSMS	.	.	224.0000	-1.2667	20.8013
LC/MS/MS	.	.	261.1940	-0.6468	20.8013
SOP.T.40.102.FL	.	.	284.4000	-0.2600	20.8013
MF-CHEM-13	.	.	303.0000	0.0500	20.8013
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.0690	-4.9989	.	.	20.8013
LC-MS/MS	29.6000	-4.5067	.	.	20.8013
No Method Provided	81.0000	-3.6500	.	.	20.8013
LCMS	113.8000	-3.1033	.	.	20.8013
LC-MS-MS	192.0000	-1.8000	.	.	20.8013
LC-MS/MS	224.3900	-1.2602	.	.	20.8013
LC-MS/MS	239.0000	-1.0167	.	.	20.8013
PT-METH-040	270.0000	-0.5000	.	.	20.8013
LC-MS/MS	318.2000	0.3033	.	.	20.8013

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Metalaxyl

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
LCMSMS	.	.	997.0000	-0.8458	83.2050
LC/MS/MS	.	.	1042.1110	-0.6579	83.2050
SOP.T.40.102.FL	.	.	1100.8000	-0.4133	83.2050
MF-CHEM-13	.	.	1130.0000	-0.2917	83.2050
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.3633	-4.9985	.	.	83.2050
No Method Provided	0.6580	-4.9973	.	.	83.2050
LC-MS/MS	136.0000	-4.4333	.	.	83.2050
LCMS	818.0000	-1.5917	.	.	83.2050
LC-MS-MS	977.0000	-0.9292	.	.	83.2050
LC-MS/MS	1074.0000	-0.5250	.	.	83.2050
LC-MS/MS	1122.7400	-0.3219	.	.	83.2050
PT-METH-040	1210.0000	0.0417	.	.	83.2050
LC-MS/MS	1359.0000	0.6625	.	.	83.2050

Appendix C

CH01 Pesticides Results Display of All Reported Results and z-Scores (When Applicable)

Ship Date: 5/1/2022

Lab_Test=Thiamethoxam

methdesc	Participating Laboratories Reported Result (ng/kg)	Participating Laboratories z-Score	Expert Laboratories Reported Result (ng/kg)	Expert Laboratories z-Score	Standard uncertainty of the assigned value
LCMSMS	.	.	222.0000	-1.3000	20.8013
LC/MS/MS	.	.	224.6800	-1.2553	20.8013
SOP.T.40.102.FL	.	.	260.0000	-0.6667	20.8013
MF-CHEM-13	.	.	299.0000	-0.0167	20.8013
LC-MS/MS	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
	Not Tested	.	.	.	.
SOP.T.40.101.FL	0.0836	-4.9986	.	.	20.8013
LC-MS/MS	25.0000	-4.5833	.	.	20.8013
LCMS	80.0000	-3.6667	.	.	20.8013
LC-MS-MS	143.0000	-2.6167	.	.	20.8013
No Method Provided	174.0000	-2.1000	.	.	20.8013
LC-MS/MS	253.0000	-0.7833	.	.	20.8013
LCMS/MS	262.0000	-0.6333	.	.	20.8013
PT-METH-040	273.0000	-0.4500	.	.	20.8013
LC-MS/MS	287.5900	-0.2068	.	.	20.8013

Cannabis/Hemp Proficiency Testing Program
Samples Received Information Sheet

Enclosed are two dried hemp samples which are color coded based on the analysis to be performed. **Sample 1-BLUE (cannabinoids, terpenes, moisture, and heavy metals)** and **Sample 2-RED (pesticides)**. **Both samples are the same Matrix.** If needed, an aliquot of **Sample 1-BLUE** can be used as a baseline or matrix blank when evaluating **Sample 2-RED**, results for pesticide residues.

Each sample has its own Instructions for Analysis page. This page contains information such as sample size, analytes, units, etc. Instructions on how to report methods and results on the PT Website, along with Instructions for Analysis for each sample, will be available to laboratories once they access their PT Website account. An email notification with a link to the secure AOAC PT website, and the labs login and password, was provided to the participating laboratory's contact on record. Proficiency testing samples should be handled like routine samples. Participants can test for as many, or as few, of the analytes as needed. Labs have three weeks to analyze samples and report results. **When reporting, participants are to calculate each analysis on an as-received basis.** Percent moisture should not be factored into the calculation and should be reported as a separate analysis.

RESULT DUE DATE: MAY 24, 2022

Verify Temperature Upon receipt:

Sample 1-BLUE is considered satisfactory if received at $\leq 10^{\circ}\text{C}$

Sample 2-RED is considered satisfactory if received at $\leq 10^{\circ}\text{C}$.

Storage Temperatures:

Sample 1-BLUE should be stored refrigerated at $\leq 8^{\circ}\text{C}$ until analysis.

Sample 2-RED should be stored frozen at $\leq -15^{\circ}\text{C}$ until analysis.

For Assistance Contact AOAC PT Staff at Cannabis_PT@AOAC.org

Sample 2-RED contains approximately 2.5g of dried Hemp matrix. **Sample 2-RED** is to be analyzed for the pesticide residues on the Possible Pesticide Residue List below, participants will indicate which pesticide residues their laboratory analyzes for during the online reporting process.

The participating laboratory should take appropriate action(s) to ensure a representative sample, such as quantitative transfer or thorough mixing, etc., or as outlined in internal procedures. Refer to the Possible Pesticides Residue list for possible spiked compounds. There is a minimum of 5 spiked pesticide residues in the sample.

Pesticide Residues

- Report values from the single glass jar provided for each sample on an **as-received basis**, in units of **ug/kg** for any of the analytes listed below.
- DO NOT REPORT A VALUE THAT IS LOWER THAN YOUR LABORATORY'S DETECTION LIMIT.

Pesticides Residue	CAS#	Pesticides Residue	CAS#
Abamectin (Avermectins: B1a & B1b)	71751-41-2	Flonicamid	158062-67-0
Acephate	30560-19-1	Fludioxonil	131341-86-1
Acequinocyl	57960-19-7	Fluopyram	658066-35-4
Acetamiprid	135410-20-7	Flurprimidol	56425-91-3
Aldicarb	116-06-3	Hexythiazox	78587-05-0
Allethrin	584-79-2	Imazalil	35554-44-0
Ancymidol	12771-68-5	Imidacloprid	138261-41-3
Azadirachtin	108168-76-9	Iprodione	36734-19-7
Azoxystrobin	131860-33-8	Kinoprene	37882-31-8
Benzovindiflupyr	1072957-71-1	Kresoxim-methyl	143390-89-0
Bifenazate	149877-41-8	Malathion	121-75-5
Bifenthrin	82657-04-3	Metaxyl	57837-19-1
Boscalid	188425-85-6	Methiocarb	2032-65-7
Buprofezin	69327-76-0	Methomyl	16752-77-5
Captan	133-06-2	Methoprene	40596-69-8
Carbaryl	63-25-2	Methyl parathion	298-00-0
Carbofuran	1563-66-2	Mevinphos	7786-34-7
Chlorantraniliprole	500008-45-7	MGK-264	113-48-4

Chlordane	57-74-9	Myclobutanil	88671-89-0
Chlorfenapyr	122453-73-0	Naled (Systhane) (Dibrom)	300-76-5
Chlormequat chloride	999-81-5	Novaluron	116714-46-6
Chlorpyrifos	2921-88-2	Oxamyl	23135-22-0
Clofentezine	74115-24-5	Paclobutrazol	76738-62-0
Clothianidin	21088-92-5	Pentachloronitrobenzene (Quintozene)	82-68-8
Coumaphos	56-72-4	Permethrin (mix of isomers)	52645-53-1
Cyantraniliprole	736994-63-1	Phenothrin (d-phenothrin)	26002-80-2
Cyfluthrin (Baythroid)	68359-37-5	Phosmet (Imidan)	60207-90-1
Cypermethrin	52315-07-8	Phosmet (oxon)	3735-33-9
Cyprodinil	121552-61-2	Piperonyl butoxide	55218
Daminozide	1596-84-5	Pirimicarb	23103-98-2
Deltamethrin	52918-63-5	Prallethrin (mix of isomers)	23031-36-9
Diazinon	333-41-5	Propiconazole (tilt)	60207-90-1
Dichlorvos	62-73-7	Propoxur (Baygon)	114-26-1
Dimethoate	60-51-5	Pyraclostrobin	175013-18-0
Dimethomorph	110488-70-5	Pyrethrin (mix of isomers)	8003-34-7
Dinotefuran	165252-70-0	Pyridaben	96489-71-3
Dodemorph	1593-77-7	Resmethrin	10453-86-8
Endosulfan I (alpha)	959-98-8	Spinetoram	187166-40-1
Endosulfan II (beta)	33213-65-9	Spinosad (mixture of A and D)	168316-95-8
Endosulfan sulfate	1031-07-8	Spirodiclofen	148477-71-8
Ethephon	16672-87-0	Spiromesifen	283594-90-1
Ethoprophos (Prophos)	13194-48-4	Spirotetramat	203313-25-1
Etofenprox	80844-07-1	Spiroxamine	118134-30-8
Etoxazole	153233-91-1	Tebuconazole	107534-96-3
Etridiazole (Terrazole)	2593-15-9	Tebufozide	112410-23-8
Fenhexamid	126833-17-8	Teflubenzuron	83121-18-0
Fenoxycarb	79127-80-3	Tetrachlorvinphos	961-11-5
Fenpyroximate (mix of isomers)	111812-58-9	Tetramethrin	7696-12-0
Fensulfothion	115-90-2	Thiacloprid	111988-49-9
Fenthion	55-38-9	Thiamethoxam	153719-23-4
Fenvalerate (Sanmarton)	51630-58-1	Thiophanate-methyl	23564-05-8
Fipronil	120068-37-3	Trifloxystrobin	141517-21-7

Test Material Provider

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Sample 2-Red homogeneity samples were prepared, extracted, and analyzed for the six spiked pesticide compounds using SOP for Sample Preparation and Analysis: Pesticide Residues by HPLC-MS/MS. Aliquots were weighed and extracted using high-purity acetonitrile. Samples were vortexed thoroughly and filtered using an SPE cartridge. The extract was then diluted and analyzed.

Pesticide Homogeneity Testing Summary

Homogeneity Testing Results						
Pesticide	Azoxystrobin	Carbofuran	Dimethoate	Malathion	Metalaxyl	Thiamethoxam
Target Concentration (ng/g, ppb)	120	1200	1200	300	1200	300
Sample	Replicate	Measured Concentration (ng/g, ppb)				
1149-H	1	100.05	794.81	934.34	231.28	965.43
1149-H	2	106.60	803.67	965.13	223.81	978.49
2851-H	1	98.36	781.32	883.38	228.29	948.44
2851-H	2	108.59	816.58	946.00	222.81	993.09
2815-H	1	104.78	813.33	937.21	245.82	969.68
2815-H	2	101.00	790.65	904.44	226.90	956.23
Summary Statistics						
Mean (ng/g, ppb)	103.23	800.06	928.42	229.82	968.56	175.47
Mean % Recovery	86%	67%	77%	77%	81%	58%
Within-Sample Std Dev using ppb	5.19	17.49	31.47	8.60	19.77	6.25
Between-Sample Std Dev using ppb	3.02	10.28	28.23	8.29	12.73	4.13
Total Std Deviation using ppb	6.01	20.29	42.28	11.95	23.52	7.49
Total CV	6%	3%	5%	5%	2%	4%
Min Measurement (% Recovery)	98.36 (82%)	781.32 (65%)	883.38 (74%)	222.81 (74%)	948.44 (79%)	167.4 (56%)
Max Measurement (% Recovery)	108.59 (90%)	816.58 (68%)	965.13 (80%)	245.82 (82%)	993.09 (83%)	180.15 (60%)
Conclusion						
	Pass	Pass	Pass	Pass	Pass	Pass