P01Pesticide Residues In Fruits& Vegetables Program

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Report Authorization

This report has been authorized by Arlene Fox, Senior Director of the AOAC laboratory Proficiency Testing Program.

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REPORT TO PARTICIPANTS IN THE AOAC® LABORATORY PROFICIENCY TESTING PROGRAMSM

PESTICIDE RESIDUES IN FRUITS & VEGETABLES PROGRAM

1.0 Introduction

Test materials for the Pesticide Residues in Fruits and Vegetables Program were shipped to participants and four Reference Laboratories on February 11, 2019. Each subscriber laboratory was given a site identification number in order to maintain confidentiality. An instruction packet on how to use the confidential online data submission system was provided electronically. The participants were to submit an electronic response online to verify the condition of the test materials upon receipt and to indicate which pesticide residues they analyze for. Participants were also instructed to report methods and results electronically. Participants were instructed to analyze the test materials according to procedures routinely used in their laboratories. The results were to be submitted to AOAC® by no later than 30 days after the receipt of samples in satisfactory condition. Results were to be submitted by March 14, 2019.

2.0 Preparation of Test Materials

Each set of test materials consisted of three samples, each containing 100 grams of frozen green beans mixture. One blank, for determining incurred pesticide residues, and two spiked samples were included in the shipment. Fresh produce was purchased at a local grocery store and prepared according to current SOP's for the matrix selected. The commodity was chopped with dry ice in a 40-quart Robo-Coupe chopper and mixed well to insure homogeneity. The dry ice was allowed to sublime by storing, at least overnight, in a -40°C freezer. Participants that reported incurred residues should reference Appendix B. Upon completion of the incurred residue analysis, the frozen produce was weighed into 100 gram portions. Spiking solutions were prepared from certified standards dissolved in acetone. Each sample was individually spiked. Spiked samples were stored in clean labeled glass jars with Teflon lined lids at -80 °C.

Four replicate samples were randomly selected to verify the presence and level of the spike (Appendix F). The requirements of Section 4.4.3 of ISO/IEC Standard 17043:2010(E) Conformity Assessment - General requirements for proficiency testing schemes were met for all samples used for evaluation. Samples were prepared by the following laboratory:

Quality Assurance Unit Center for Analytical Chemistry California Dept. of Food & Agriculture 3292 Meadowview Road, Sacramento, CA 95832

3.0 Analyses Requested

Sample 1 (Blank) was to be used to determine incurred pesticide residues. Samples 2 & 3 were to be analyzed for all pesticide residues below that are relevant to the participating laboratory. Results should only be reported for the pesticide residues listed below. Other pesticide residues may have been present, but should not have been reported.

Pesticide Residue	CAS#
Acetamiprid	135410-20-7
Aldicarb	116-06-3
Aldicarb sulfoxide	1646-87-3
Aldoxycarb	1646-88-4
Azinphos ethyl	2642-71-9
Azinphos methyl	86-50-0
Azoxystrobin	131860-33-88
BHC (HCH) - Total	608-73-1
Boscalid	188425-85-6
Carbaryl	63-25-2
Carbofuran	1563-66-2
Chlorpropham (CIPC)	101-21-3
Chlorpyrifos	2921-88-2
Clothianidin	210880-92-5
Cypermethrin	52315-07-8
Cyprodinil	121552-61-2
DCPA (Dacthal)	1861-32-1
DDE p p	72-55-9
DDT p p	50-29-3
Diazinon	333-41-5
Dichloran	99-30-9
Dieldrin	60-57-1
Dimethoate	60-51-5
Dinotefuran	165252-70-0
Diphenylamine	122-39-4
Endosufan II	33213-65-9
Endosulfan I	959-98-8
Endosulfan sulfate	1031-07-8
Ethion	563-12-2

Pesticide Residue	CAS#
Fenbuconazole	114369-43-6
Fenvalerate-Total	51630-58-1
Fludioxonil	131341-86-1
Imidacloprid	138261-41-3
Iprodione	36734-19-7
Malathion	121-75-5
Methamidophos	10265-92-6
Methidathion	950-37-8
Methoxyfenozide	161050-58-4
Myclobutanil	88671-89-0
Omethoate	1113-02-6
Oxamyl	23135-22-0
Parathion methyl	298-00-0
Permethrin - total	52645-53-1
Phorate sulfone	2588-04-7
Phosmet	732-11-6
Pirimiphos methyl	29232-93-7
Propiconazole	60207-90-1
Propoxur	114-26-1
Pyraclostrobin	175013-18-0
Pyrimethanil	53112-28-0
	131929-60-7 (Spinosyn
	A) & 131929-63-0
Spinosad-Total	(Spinosyn D)
Tebufenozide	112410-23-8
Thiamethoxam	153719-23-4
Trifloxystrobin	141517-21-7
Quintozene	82-68-8
Vinclozolin	50471-44-8

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.

4.0 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 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:

Results Obtained	<u>Rating</u>
lzl ≤ 2	Satisfactory
2 < z < 3	Questionable
lzl ≥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 were based on calculations that use more decimal places than is possible to display on the results sheet. The SAS programming and processing is conducted by a sub-contractor.

5.0 Results

5.1 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 Reference Laboratories. There were four Reference 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 3.0. 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 period 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 reference laboratories are within 2 standard deviations of the target concentration, or if only three of the four reference laboratories must be within 2 standard deviations of the target concentration, or if only three reference laboratories must be within 2 standard deviations of the target concentration, or if only two reference laboratories analyze for a residue, then both reference laboratories must be within 2 standard deviations of the target concentration. All analytes, except S3 Pirimiphos methyl, met the criteria stated above. 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: S2 Endosulfan II, S2 Iprodione, S2 Methidathion, S2 Pyrimethanil, S2 Tebufenozide S3 DCPA, S3 Endosulfan II, S3 Fenbuconazole, and S3 Thiamethoxam.

The limit of detection for this program is currently set at 0.0200 part per million. 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.

Appendix A is included in this report to show the targeted value, standard deviation, median of the Reference Laboratories, subscriber reported results; and participant z-scores where applicable. Appendix B is included to show all incurred and additional residues reported by participants. The test material provider determined there were no incurred residues. Appendix C displays the reported values for all participating labs and their corresponding z-scores. Appendix C now also displays the methodology used next to the corresponding reported value and z-score. If a component was included in the analysis by a laboratory, but none was detected, it is represented in Appendix C as 0.0200 ppm. The same information is provided for the reference labs. Each laboratory should use the information in Appendix A, Appendix B, and Appendix C to determine areas of improvement. Graphs illustrate the results of all the Participant Laboratories versus the Reference Laboratories versus the targeted value. Appendix E is instructions 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 <u>LPTP@AOAC.org</u>

Individual laboratory results are in Appendix A

5.2 Discussion of Data Plots

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 component was included in the analysis by a laboratory, but none was detected, it is represented on the graph as 0.0200 ppm. 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 zscore value of + 5 have been included in the graphs. As AOAC® continues to improve its reporting format, changes may occur.

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=2 Test=Endosulfan II

Method	Participating Laboratories Reported Result (ppm)	Participating Laboratories z-Score	Reference Laboratories Reported Result (ppm)	Reference Laboratories z-Score	Standard uncertainty of the assigned value
PMRA-LS-Method-001V4.1			0.0500	-1.7320	0.0058
No Method Provided			0.0635	-0.8497	0.0058
CFIA PMR-005			0.0720	-0.2941	0.0058
CDFA			0.0720	-0.2941	0.0058
	Not Tested				
	Not Tested				
	Not Detected				
GCMS	0.0414	-2.2941			0.0058
Quechers	0.0500	-1.7320			0.0058
TM-013	0.0570	-1.2745			0.0058
CFIA PMR-006-v1.0	0.0580	-1.2092			0.0058
AOAC 2007.01	0.0600	-1.0784			0.0058
Quechers GC/MS/MS	0.0616	-0.9739			0.0058
GC-MSMS	0.0675	-0.5882			0.0058
CFIA PMR-001-V1.11	0.0730	-0.2288			0.0058
Mod. AOAC 2007	0.0770	0.0327			0.0058
GCMS	0.0810	0.2941			0.0058

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=2 Test=Iprodione

	Participating		Deference		Standard
	Laboratories	Participating	Laboratories	Reference	of the
	Reported Result	t Laboratories	Reported Result	Laboratories	assigned
Method	(ppm)	z-Score	(ppm)	z-Score	value
No Method Provided	•		0.1570	-1.4908	0.0169
PMRA-LS-Method-001V4.1			0.1900	-0.7532	0.0169
CFIA PMR-005			0.2130	-0.2392	0.0169
CDFA			0.2240	0.0067	0.0169
	Not Tested				
	Not Tested				
Mod. AOAC 2007	0.1100	-2.5414			0.0169
GCMS	0.1492	-1.6652			0.0169
AOAC 2007.01	0.1750	-1.0885			0.0169
QuEChers Method, DFS/ORA/FDA No.4418	0.1800	-0.9768			0.0169
AOAC 2007.01	0.1800	-0.9768			0.0169
Quechers LC/MS/MS	0.2118	-0.2660			0.0169
TM-013	0.2150	-0.1945			0.0169
GC-MSMS	0.2292	0.1229			0.0169
Quechers	0.2400	0.3643			0.0169
CFIA PMR-006-v1.0	0.2540	0.6772			0.0169
CFIA PMR-001-V1.11	0.2680	0.9902			0.0169

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=2 Test=Methidathion

	Participating		Reference		Standard uncertainty
	Laboratories	Participating	Laboratories	Reference	of the
Method	Reported Resul	t Laboratories	Reported Result	Laboratories	assigned
PMRA-LS-Method-001V4.1	<u>(ppm)</u>		0.0530	-1.1871	0.0058
CDFA		•	0.0560	-0.9712	0.0058
No Method Provided			0.0594	-0.7266	0.0058
CFIA PMR-016			0.0665	-0.2158	0.0058
	Not Tested				
	Not Tested				
	Not Tested				
	Not Tested				
Mod. AOAC 2007	0.0250	-3.2014			0.0058
LCMSMS	0.0346	-2.5108			0.0058
TM-013	0.0470	-1.6187			0.0058
AOAC 2007.01	0.0530	-1.1871			0.0058
LC-MSMS	0.0558	-0.9856			0.0058
Quechers GC/MS/MS	0.0596	-0.7122			0.0058
CFIA PMR-006-v1.0	0.0640	-0.3957			0.0058
CFIA PMR-016-V1.0	0.0650	-0.3237			0.0058
QuEChers Method, DFS/ORA/FDA No.4418	0.0700	0.0360			0.0058

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=2 Test=Pyrimethanil

	Participating		Reference		Standard uncertainty
	Laboratories	Participating	Laboratories	Reference	of the
Method	(ppm)	t Laboratories z-Score	(ppm)	Laboratories z-Score	assigned value
PMRA-LS-Method-001V4.1			0.0930	-1.0924	0.0086
CDFA			0.1010	-0.7563	0.0086
No Method Provided			0.1074	-0.4874	0.0086
CFIA PMR-016			0.1080	-0.4622	0.0086
	Not Tested				
	Not Detected				
	Not Detected				
LCMSMS	0.0536	-2.7479			0.0086
Mod. AOAC 2007	0.0750	-1.8487			0.0086
AOAC 2007.01	0.0860	-1.3866			0.0086
QuEChers Method, DFS/ORA/FDA No.4418	0.0900	-1.2185			0.0086
CFIA PMR-016-V1.0	0.1000	-0.7983			0.0086
Quechers	0.1000	-0.7983			0.0086
LC-MSMS	0.1043	-0.6176			0.0086
Quechers LC/MS/MS	0.1099	-0.3824			0.0086
LCMSMS	0.1130	-0.2521			0.0086
CFIA PMR-006-v1.0	0.1350	0.6723			0.0086

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=2 Test=Tebufenozide

	Participating		Reference		Standard uncertainty
	Laboratories	Participating	Laboratories	Reference	of the
Method	(ppm)	z-Score	(ppm)	z-Score	value
PMRA-LS-Method-001V4.1			0.0670	-1.2402	0.0074
CDFA			0.0750	-0.7912	0.0074
No Method Provided			0.0772	-0.6678	0.0074
CFIA PMR-016			0.0850	-0.2301	0.0074
	Not Tested				
	Not Tested				
	Not Tested				
	Not Tested				
AOAC 2007.01	0.0400	-2.7553			0.0074
LCMSMS	0.0409	-2.7048			0.0074
CFIA PMR-006-v1.0	0.0610	-1.5769			0.0074
AOAC 2007.01	0.0640	-1.4085			0.0074
Quechers LC/MS/MS	0.0732	-0.8923			0.0074
LC-MSMS	0.0757	-0.7520			0.0074
CFIA PMR-016-V1.0	0.0790	-0.5668			0.0074
QuEChers Method, DFS/ORA/FDA No.4418	0.0800	-0.5107			0.0074
Quechers	0.1100	1.1728		•	0.0074

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=3 Test=DCPA

	Participating Laboratories Reported Result	Participating Laboratories	Reference Laboratories Reported Result	Reference Laboratories	Standard uncertainty of the assigned
Method	(ppm)	z-Score	(ppm)	z-Score	value
PMRA-LS-Method-001V4.1	•	•	0.0390	-1.8241	0.0046
CFIA PMR-005			0.0530	-0.6840	0.0046
No Method Provided			0.0596	-0.1466	0.0046
CDFA			0.0610	-0.0326	0.0046
	Not Tested				
	Not Tested				
	Not Detected				
QuEChers Method, DFS/ORA/FDA No.4418	0.0300	-2.5570			0.0046
GCMS	0.0361	-2.0603			0.0046
Quechers	0.0400	-1.7427			0.0046
AOAC 2007.01	0.0400	-1.7427			0.0046
GC-MSMS	0.0517	-0.7899			0.0046
Mod. AOAC 2007	0.0540	-0.6026			0.0046
AOAC 2007.01	0.0590	-0.1954			0.0046
CFIA PMR-001-V1.11	0.0600	-0.1140			0.0046
TM-013	0.0600	-0.1140			0.0046
CFIA PMR-006-v1.0	0.0650	0.2932			0.0046

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=3 Test=Endosulfan II

Method	Participating Laboratories Reported Result (ppm)	Participating Laboratories z-Score	Reference Laboratories Reported Result (ppm)	Reference Laboratories z-Score	Standard uncertainty of the assigned value
PMRA-LS-Method-001V4.1		•	0.0430	-2.1895	0.0058
CFIA PMR-005			0.0610	-1.0131	0.0058
No Method Provided			0.0628	-0.8954	0.0058
CDFA			0.0710	-0.3595	0.0058
	Not Tested	•	•		
	Not Tested	•	•		
	Not Detected		•		
GCMS	0.0366	-2.6078	•		0.0058
Mod. AOAC 2007	0.0530	-1.5359	•		0.0058
AOAC 2007.01	0.0580	-1.2092	•		0.0058
Quechers	0.0600	-1.0784			0.0058
CFIA PMR-006-v1.0	0.0600	-1.0784			0.0058
Quechers GC/MS/MS	0.0611	-1.0065			0.0058
GC-MSMS	0.0635	-0.8497			0.0058
TM-013	0.0640	-0.8170			0.0058
CFIA PMR-001-V1.11	0.0690	-0.4902			0.0058
GCMS	0.0840	0.4902		•	0.0058

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=3 Test=Fenbuconazole

Method	Participating Laboratories Reported Result (ppm)	Participating Laboratories z-Score	Reference Laboratories Reported Result (ppm)	Reference Laboratories z-Score	Standard uncertainty of the assigned value
PMRA-LS-Method-001V4.1		•	0.0550	-1.8856	0.0070
CFIA PMR-005			0.0800	-0.4700	0.0070
No Method Provided			0.0875	-0.0453	0.0070
CDFA			0.0980	0.5493	0.0070
	Not Tested				
	Not Tested				•
	Not Tested				
	Not Detected				
GCMS	0.0641	-1.3703			0.0070
Mod. AOAC 2007	0.0670	-1.2061			0.0070
GC-MSMS	0.0733	-0.8494			0.0070
AOAC 2007.01	0.0900	0.0963			0.0070
CFIA PMR-006-v1.0	0.0910	0.1529			0.0070
CFIA PMR-001-V1.11	0.0990	0.6059			0.0070
Quechers LC/MS/MS	0.1000	0.6625			0.0070
QuEChers Method, DFS/ORA/FDA No.4418	0.1300	2.3613			0.0070
Quechers	0.1300	2.3613			0.0070

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=3 Test=Pirimiphos methyl

Method	Participating Laboratories Reported Result (ppm)	Participating Laboratories z-Score	Reference Laboratories Reported Result (ppm)	Reference Laboratories z-Score	Standard uncertainty of the assigned value
	•		0.0200	•	
PMRA-LS-Method-001V4.1			0.0210		
CDFA			0.0280		
No Method Provided			0.0309		
	Not Tested				
	Not Tested				
	Not Tested				
Mod. AOAC 2007	Not Tested				
Quechers	Not Detected				
	Not Detected				
GCMS	0.0204				
GC-MSMS	0.0270				
QuEChers Method, DFS/ORA/FDA No.4418	0.0300				
CFIA PMR-001-V1.11	0.0320				
AOAC 2007.01	0.0330				
CFIA PMR-006 v1.0	0.0340				
Quechers LC/MS/MS	0.0457				

P01 Pesticide Residues in Fruits and Vegetables 2/12/2019 Display of All Reported Results and z-Scores (When Applicable)

Sample=3 Test=Thiamethoxam

	Participating		Reference		Standard uncertainty
	Laboratories	Participating	Laboratories	Reference	of the
	Reported Resul	t Laboratories	Reported Result	Laboratories	assigned
Method	(ppm)	z-Score	(ppm)	z-Score	value
PMRA-LS-Method-001V4.1			0.1300	-0.7237	0.0120
CDFA			0.1300	-0.7237	0.0120
No Method Provided	•	•	0.1385	-0.4441	0.0120
CFIA PMR-016			0.1790	0.8882	0.0120
	Not Tested				
	Not Tested				
	Not Tested				
AOAC 2007.01	0.0400	-3.6842	•		0.0120
LCMSMS	0.0786	-2.4145	•		0.0120
TM-013	0.1400	-0.3947	•		0.0120
CFIA PMR-016-V1.0	0.1460	-0.1974			0.0120
AOAC 2007.01	0.1460	-0.1974			0.0120
LC-MSMS	0.1509	-0.0362			0.0120
Quechers LC/MS/MS	0.1639	0.3914			0.0120
LCMSMS	0.1680	0.5263			0.0120
QuEChers Method, DFS/ORA/FDA No.4418	0.1800	0.9211			0.0120
CFIA PMR-006 v1.0	0.2070	1.8092		•	0.0120





The Scientific Association Dedicated to Analytical Excellence*

P01 Pesticide Residue Instructions for Analysis

Enclosed is the AOAC Proficiency Evaluation Set #58 for PO1. Please note there are two samples for analysis and one blank. The Possible Pesticide Residue List has been updated.

Use our secure NEW AOAC PROFICIENCY TESTING WEBSITE <u>https://pt2.aoac.org</u> to handle the reporting of responses, methods and results. Login information will be e-mailed.

Sample 1 continues to be a blank. Report incurred residues only for sample 1. Samples 2 and 3 are to be analyzed for the pesticide residues your laboratory indicated it analyzes for on the Possible Pesticide Residue List. Other pesticides may be present, but should not be reported. **Please follow these directions.**

DO NOT REPORT A VALUE THAT IS LOWER THAN YOUR LABORATORY'S DETECTION LIMIT.

The sample matrix is Sweet Potato. Three Sweet Potato samples are included, one blank and two spiked. The samples were prepared as follows: commodity was homogenized, exactly 100 grams was weighed into shipping jars. The jars were frozen, and then individually spiked with pesticide solution. Therefore, 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 enclosed pesticide list for possible spiked compounds.

Email us at <u>LPTP@AOAC.org</u> with any questions about this program, or if you have problems with your shipment. Thank you for your participation.

The shipping containers and artificial ice are used for one way shipping only and need not be returned.

RESULTS ARE DUE ON MARCH 14, 2019

AOAC INTERNATIONAL

2275 Research Blvd, Ste 300 Rockville, MD 20850-3250 US Telephone +1-301-924-7077 Fax + 1-301-924-7089 Internet e-mail: LPTP@aoac.org

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Appendix F

AOAC International Proficiency Testing

Table 2: QA Spike check and Homogeneity (ppm), AOAC Set # 58

			Green Beans # 2			Green Beans # 3					
	Tebufenozide	Methidathion	Iprodione	Pyrimethanil	Endosulfan II	Endosulfan II	Pirimiphos Methyl	Thiamethoxam	DCPA	Fenbuconazole	
	0.0891	0.0695	0.2237	0.1190	0.0765	0.0765	0.0359	0.1520	0.0614	0.0883	
Replicate 1	0.0834	0.0685	0.2119	0.1156	0.0730	0.0716	0.0317	0.1457	0.0559	0.0804	
Replicate 2	0.0814	0.0646	0.2205	0.1112	0.0737	0.0746	0.0321	0.1436	0.0559	0.0797	
Replicate 3	0.0800	0.0635	0.2204	0.1118	0.0687	0.0747	0.0320	0.1451	0.0585	0.0777	
Replicate 4	0.0790	0.0647	0.1978	0.1125	0.0673	0.0727	0.0311	0.1441	0.0565	0.0825	
Mean	0.0810	0.0650	0.2130	0.1130	0.0710	0.0730	0.0320	0.1450	0.0570	0.0800	
% Recovery	91	94	95	95	93	95	89	95	93	91	
Std.Dev.	0.002	0.002	0.011	0.002	0.003	0.002	0.000	0.001	0.001	0.002	
% CV	2	3	5	2	4	3	0	1	2	3	
S. E. M.	0.001	0.001	0.006	0.001	0.002	0.001	0.000	0.001	0.001	0.001	
Min.	0.079	0.064	0.198	0.111	0.067	0.072	0.031	0.144	0.056	0.078	
Max.	0.083	0.069	0.221	0.116	0.074	0.075	0.032	0.146	0.059	0.083	

Grand Mean % Recovery:

Grand Mean % CV:

93

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Appendix A

Site	Sample	Test	Reported result	Number of reported results	Min result	Mean of results	Median result	Max result	Assigned value	l Target SD	Median of Ref Labs	Z-score	Standard uncertainty of the assigned value	Notes
xxxxx	2	Endosulfan II	0.0720	11	0.020	0.0588	0.0600	0.0810	0.0765	0.0153	0.0678	-0.29	0.006	
	2	Iprodione	0.2240	11	0.110	0.2011	0.2118	0.2680	0.2237	0.0447	0.2015	0.01	0.017	
	2	Methidathion	0.0560	9	0.025	0.0527	0.0558	0.0700	0.0695	0.0139	0.0577	-0.97	0.006	
	2	Pyrimethanil	0.1010	12	0.020	0.0839	0.0950	0.1350	0.1190	0.0238	0.1042	-0.76	0.009	
	2	Tebufenozide	0.0750	9	0.040	0.0693	0.0732	0.1100	0.0891	0.0178	0.0761	-0.79	0.007	
	3	DCPA	0.0610	11	0.020	0.0469	0.0517	0.0650	0.0614	0.0123	0.0563	-0.03	0.005	
	3	Endosulfan II	0.0710	11	0.020	0.0572	0.0600	0.0840	0.0765	0.0153	0.0619	-0.36	0.006	
	3	Fenbuconazole	0.0980	10	0.020	0.0864	0.0905	0.1300	0.0883	0.0177	0.0837	0.55	0.007	
	3	Pirimiphos methyl	0.0280	10	0.019	0.0281	0.0285	0.0457	0.0359	0.0072	0.0245			Z not computed
	3	Thiamethoxam	0.1300	10	0.040	0.1420	0.1485	0.2070	0.1520	0.0304	0.1343	-0.72	0.012	

Appendix B

Additional Pesticide Residues Detected in the February, 2019 Samples

Sample	Pesticide Residue	Values Reported (ppm)	Number of Participants Reporting	Value Reported by xxxxx (ppm)
1		None	None	None
2		None	None	None
3		None	None	None
2	Endosulfan sulfate	0.0010	1	None
3	Endosulfan sulfate	0.0010	1	None

Additional Pesticide Residues Reported By All Laboratories

Appendix D

04/24/2019

P01 Site: xxxxx Test=DCPA 2/12/2019



P01 Site: xxxxx 2/12/2019 Test=Endosulfan II



P01 Site: xxxxx 2/12/2019 Test=Fenbuconazole



P01 Site: xxxxx 2/12/2019 Test=Iprodione



P01 Site: xxxxx 2/12/2019 Test=Methidathion



Appendix D

2/12/2019

04/24/2019

P01 Site xxxxx

Test=Pirimiphos methyl



P01 Site: xxxxx 2/12/2019 Test=Pyrimethanil



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P01 Site: xxxxx 2/12/2019 Test=Tebufenozide



P01 Site: xxxxx 2/12/2019 Test=Thiamethoxam

