

## Agriculture Laboratory Proficiency (ALP) Program Individual Performance Analysis Report

*The ALP Program is operated by Collaborative Testing Services, Inc.  
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The Agriculture Laboratory Proficiency (ALP) Program Spring 2012 (Cycle 17) was completed in May, 2012, with results provided by 72 labs from the United States, Canada, Greece, Guatemala, South Africa, Romania and South Korea. Proficiency samples consisted of five soils, three botanical and three water samples. Analytical methods evaluated are based on those published by AOAC, four regional soil work groups, the Soil Plant Analysis Council and Forestry Canada.

Standard Reference Soils (SRS), materials used for the soils and environmental programs were: SRS1201 a sandy loam collected from Humbolt City, NV; SRS1202 a fine Palmyra gravelly loam collected from Onondaga, NY; SRS1203 a Nicollet loam collected from Story City, IA; SRS1204 an Appling-Spotsylvania sandy loam collected from Chesterfield City, VA; and SRS1205 a silty clay loam collected from Virden, MB CANADA. Standard Reference Botanical (SRB) materials were: parsley leaves from CA, grape petioles from CA, and corn stalks from IA. Standard Reference Water (SRW) solutions represent agriculture water samples collected from: Windor Lake in Weld City, CO; tile drainage from McLean City, IL and west Fork Clear Creek in Union City, OR.

This Individual Performance Analysis report presents results that are particular to your laboratory. All properties and samples for which your laboratory reported results are presented in this report. An analysis between and within laboratory performance for soil, botanicals, water and environmental properties will follow this page. A summary of results follows immediately after the analysis for each sample type. This summary condenses your between laboratory performance on a single page; this summary may be the best place to start the review of your results.

It is important to remember that all ALP Program evaluations are based on comparative and consensus statistics; users must be aware that small group statistics are inherently less robust than large group statistics, even though robust evaluations have been preferentially chosen. No comparative results are provided for analyses with fewer than 4 reported results. Results of all laboratories that reported for each property may be found in the web-based summary report posted on the CTS Web site.

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### **Quick Key to your Performance Analysis Report**

<b>Lab Mean</b>	The mean of the triplicate determinations submitted for each sample-property.
<b>Grand Median</b>	The median of all included Lab Means submitted for each sample-property.
<b>MAD</b>	The median of the differences (absolute values) between the Grand Median and the Lab Means.
<b>95% Conf Interval</b>	The estimated range of value which is likely to include the sample-property value, calculated from the Grand Median and the M.A.D.
<b>WithinLab Performance, k</b>	The ratio (standard or z-score) of each laboratory standard deviation within each sample-property and the WithinLab Avg STD (see below). A score of 1 indicates that variation within a laboratory for that sample-property was the same as the average variation.
<b>WithinLab Avg STD</b>	The average (sum of squares) of the standard deviations of the triplicate determinations submitted for each sample-property.
<b>Laboratory-Sample Bias</b> (from summary page)	The ratio (standard or z-score) of each laboratory difference, between the Lab Mean and the Grand Median, and the M.A.D. A score of 0 indicates agreement of the laboratory with the consensus average.



Analysis # 802: Botanicals Properties

Test Code	Analysis	Units	Samples	Lab Mean	Grand Median	MAD	95% Conf Interval	WithinLab Performance, k	WithinLab Avg STD	Labs Rpt
202	NO3 - N Cd Rd.	mg/kg	SRB1201	1,787.3	1,797.0	149.5	1,363.5 - 2,230.5	0.11	92.3	18
			SRB1202	1,129.7	1,036.5	64.8	848.5 - 1,224.5	0.93	52.9	18
			SRB1203	47.3	33.1	22.3	0.0 - 97.9	0.58	23.6	18
206	PO4 - P	mg/kg	SRB1201	1,577.7	1,793.3	138.5	1,391.7 - 2,195.0	0.19	88.8	12
			SRB1202	3,122.7	3,209.3	154.7	2,760.8 - 3,657.9	0.20	88.9	12
			SRB1203	2,376.7	2,388.3	115.0	2,054.8 - 2,721.8	0.29	74.8	12
210	N- Dry Comb.	Percent	SRB1201	3.80	3.78	0.07	3.59 - 3.98	2.74 X	0.04	24
			SRB1202	1.33 X	1.09	0.06	0.92 - 1.26	0.91	0.02	24
			SRB1203	1.97	1.87	0.06	1.69 - 2.05	2.98 X	0.05	24
212	P	Percent	SRB1201	0.32	0.37	0.021	0.31 - 0.43	0.66	0.01	28
			SRB1202	0.38	0.40	0.027	0.33 - 0.48	1.12	0.01	28
			SRB1203	0.27	0.29	0.019	0.24 - 0.35	0.38	0.01	28
213	K	Percent	SRB1201	2.18	2.46	0.12	2.13 - 2.80	0.73	0.07	28
			SRB1202	2.28	2.30	0.10	2.01 - 2.60	0.47	0.09	28
			SRB1203	2.02	2.02	0.09	1.76 - 2.28	0.38	0.08	28
214	Ca	Percent	SRB1201	2.04	2.18	0.10	1.88 - 2.48	0.19	0.08	27
			SRB1202	1.34	1.34	0.08	1.12 - 1.57	0.42	0.04	27
			SRB1203	0.34	0.35	0.017	0.30 - 0.40	0.51	0.02	27
215	Mg	Percent	SRB1201	0.52	0.54	0.023	0.47 - 0.61	0.97	0.02	27
			SRB1202	0.43	0.42	0.020	0.36 - 0.48	0.91	0.01	27
			SRB1203	0.23	0.22	0.013	0.18 - 0.26	0.23	0.01	27
216	S	Percent	SRB1201	0.79 X	0.95	0.05	0.79 - 1.10	0.43	0.02	26
			SRB1202	0.13	0.14	0.007	0.12 - 0.16	0.70	0.01	26
			SRB1203	0.13	0.13	0.008	0.11 - 0.15	0.59	0.01	26
217	Na	Percent	SRB1201	0.70	0.73	0.036	0.63 - 0.84	0.71	0.02	25
			SRB1202	0.15	0.15	0.010	0.12 - 0.18	0.21	0.01	25
			SRB1203	0.26	0.24	0.014	0.20 - 0.28	0.78	0.01	25
219	B	mg/kg	SRB1201	29.8	30.7	6.65	11.4 - 50.0	0.77	0.9	24
			SRB1202	36.6	35.6	3.02	26.9 - 44.4	0.29	1.1	24
			SRB1203	4.68	4.53	1.22	1.00 - 8.07	0.21	0.96	24
220	Zn	mg/kg	SRB1201	37.0	44.8	3.83	33.7 - 56.0	1.22	1.3	27
			SRB1202	46.6	47.4	3.43	37.5 - 57.4	0.99	1.6	27
			SRB1203	26.3	26.9	1.43	22.7 - 31.1	0.49	1.2	27
221	Mn	mg/kg	SRB1201	135.7	152.2	6.13	134.4 - 170.0	0.54	4.3	27
			SRB1202	114.9	120.2	6.83	100.4 - 140.0	1.12	3.5	27
			SRB1203	640.8	643.7	42.0	521.9 - 765.5	0.66	21.4	27
222	Fe	mg/kg	SRB1201	3,067.0	4,028.3	529.0	2,494.2 - 5,562.4	0.84	183.8	27
			SRB1202	42.8	46.3	8.33	22.2 - 70.5	0.45	8.7	27
			SRB1203	114.5	128.0	10.8	96.6 - 159.4	0.54	7.6	27
223	Cu	mg/kg	SRB1201	15.5	15.3	1.00	12.4 - 18.2	1.17	0.7	27
			SRB1202	20.5	19.8	1.72	14.8 - 24.8	0.50	1.0	27
			SRB1203	3.31	2.00	0.53	0.45 - 3.55	0.46	0.39	27



## Agriculture Laboratory Proficiency (ALP) Program

Performance Analysis Report - Test Cycle 17

CTS Lab Code: U6291A

### Laboratory Performance Summary - Botanicals Properties

#### Performance Review of Laboratory-Sample Biases

z-scores calculated using Lab Median and mean average deviation  
 (numbers closer to zero indicate closer agreement with other laboratories and  
 scores outside limits in red)

Test Code	Analysis	SRB1201	SRB1202	SRB1203
202	NO3 - N Cd Rd.	-0.06	1.44	0.64
206	PO4 - P	-1.56	-0.56	-0.10
210	N- Dry Comb.	0.20	3.97	1.60
212	P	-2.48	-0.88	-1.35
213	K	-2.47	-0.19	0.04
214	Ca	-1.36	-0.07	-0.54
215	Mg	-0.97	0.62	0.88
216	S	-2.95	-0.90	-0.76
217	Na	-0.91	0.32	1.14
219	B	-0.13	0.32	0.12
220	Zn	-2.05	-0.24	-0.40
221	Mn	-2.68	-0.77	-0.07
222	Fe	-1.82	-0.42	-1.24
223	Cu	0.12	0.44	2.46