

Agriculture Laboratory Proficiency (ALP) Program Individual Performance Analysis Report

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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.

Quick Key to your Performance Analysis Report

Lab Mean	The mean of the triplicate determinations submitted for each sample-property.
Grand Median	The median of all included Lab Means submitted for each sample-property.
MAD	The median of the differences (absolute values) between the Grand Median and the Lab Means.
95% Conf Interval	The estimated range of value which is likely to include the sample-property value, calculated from the Grand Median and the M.A.D.
WithinLab Performance, k	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.
WithinLab Avg STD	The average (sum of squares) of the standard deviations of the triplicate determinations submitted for each sample-property.
Laboratory-Sample Bias (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 # 801: Soil Properties

Test Code	Analysis	Units	Samples	Lab Mean	Grand Median	MAD	95% Conf Interval	WithinLab Performance, k	WithinLab Avg STD	Labs Rpt
101	Saturated Paste Moisture	Percent	SRS1201	36.0	39.0	1.93	33.4 - 44.6	0.98	1.2	17
			SRS1202	39.6	39.2	1.23	35.7 - 42.8	0.43	1.2	17
			SRS1203	27.8	29.7	2.28	23.1 - 36.3	0.65	1.4	17
			SRS1204	43.2	39.5	2.47	32.4 - 46.7	0.72	2.1	17
			SRS1205	30.7	34.7	3.00	26.0 - 43.4	0.08	1.4	17
102	pH - sp	Unit	SRS1201	7.44	7.44	0.10	7.14 - 7.74	0.93	0.05	17
			SRS1202	7.14	7.13	0.12	6.80 - 7.47	0.20	0.05	17
			SRS1203	6.74	6.93	0.10	6.65 - 7.21	0.04	0.12	17
			SRS1204	4.95	5.08	0.12	4.74 - 5.43	0.11	0.15	16
			SRS1205	7.55	7.57	0.10	7.29 - 7.85	0.33	0.08	17
103	ECe - sp	dS/m	SRS1201	1.69	1.68	0.11	1.37 - 1.99	0.30	0.08	20
			SRS1202	1.15	1.15	0.07	0.94 - 1.35	1.25	0.05	20
			SRS1203	0.81	0.71	0.10	0.43 - 0.99	0.10	0.07	20
			SRS1204	0.12	0.11	0.020	0.05 - 0.17	1.06	0.01	19
			SRS1205	1.09	1.02	0.08	0.80 - 1.24	0.99	0.04	20
126	NO3-N Cd. Rd.	mg/kg	SRS1201	18.5	16.8	1.41	12.7 - 20.9	0.32	0.7	35
			SRS1202	45.2	49.2	3.93	37.8 - 60.6	0.67	1.4	35
			SRS1203	27.1	21.8	3.07	12.9 - 30.7	0.98	0.9	35
			SRS1204	1.80	0.89	0.39	0.00 - 2.04	0.90	0.30	33
			SRS1205	34.0	32.4	2.11	26.3 - 38.5	0.81	1.4	35
134	PO4-P Olsen/Bicarb (1:20)	mg/kg	SRS1201	21.4	20.4	1.97	14.7 - 26.1	0.37	1.4	31
			SRS1202	5.60	6.73	0.80	4.41 - 9.05	0.79	0.77	31
			SRS1203	38.3	33.5	2.83	25.3 - 41.7	0.84	1.8	31
			SRS1204	2.20	2.33	0.67	0.40 - 4.27	0.15	0.66	30
			SRS1205	5.83	6.80	0.97	4.00 - 9.60	0.30	0.78	31
140	K Ammonium Acetate	mg/kg	SRS1201	542.7	506.0	20.3	447.0 - 565.0	0.33	23.1	39
			SRS1202	52.6	52.6	4.32	40.1 - 65.1	0.12	43.0	39
			SRS1203	175.8	156.0	13.7	116.4 - 195.6	0.21	7.9	39
			SRS1204	133.2	125.7	10.3	95.7 - 155.6	0.37	5.9	37
			SRS1205	335.9	330.3	25.7	255.9 - 404.8	0.60	14.0	39
141	Ca Ammonium Acetate	mg/kg	SRS1201	1,193.7	1,198.0	74.7	981.2 - 1,414.8	0.64	36.4	36
			SRS1202	1,902.3	2,106.3	199.5	1,527.8 - 2,684.9	0.86	115.1	36
			SRS1203	2,362.0	2,271.3	182.2	1,743.1 - 2,799.6	0.63	94.8	36
			SRS1204	591.0	579.3	55.3	418.9 - 739.8	0.32	28.8	35
			SRS1205	3,940.3	3,996.0	468.2	2,638.3 - 5,353.7	1.11	139.7	36
142	Mg Ammonium Acetate	mg/kg	SRS1201	243.6	216.0	16.8	167.2 - 264.8	0.47	12.9	36
			SRS1202	207.2	205.3	18.1	153.0 - 257.7	0.71	10.8	36
			SRS1203	355.6 X	288.0	22.9	221.7 - 354.3	0.25	16.6	36
			SRS1204	120.6	102.3	10.1	73.0 - 131.6	0.22	5.8	35
			SRS1205	514.6	481.3	36.3	376.1 - 586.6	0.52	13.1	36
143	Na Ammonium Acetate	mg/kg	SRS1201	229.5 X	182.0	10.7	151.1 - 212.9	0.75	15.2	31
			SRS1202	47.6 X	12.3	3.81	1.3 - 23.4	0.28	2.4	31
			SRS1203	42.7 X	12.9	3.70	2.1 - 23.6	0.49	6.5	31
			SRS1204	53.4 X	22.6	4.29	10.1 - 35.0	0.21	8.3	30
			SRS1205	59.8 X	27.7	4.67	14.1 - 41.2	1.32	5.3	31
145	K- Bicarb.	mg/kg	SRS1201	540.3	436.6	49.7	292.5 - 580.6	1.83 X	8.9	4
			SRS1202	60.0	57.5	5.83	40.6 - 74.4	0.83	2.4	4
			SRS1203	171.3 X	125.1	10.8	93.7 - 156.5	0.49	3.1	4
			SRS1204	125.7 X	103.8	5.69	87.3 - 120.3	0.74	5.1	4
			SRS1205	288.3	248.8	18.2	196.2 - 301.5	0.81	6.8	4



Analysis # 801: Soil Properties

Test Code	Analysis	Units	Samples	Lab Mean	Grand Median	MAD	95% Conf Interval	WithinLab Performance, k	WithinLab Avg STD	Labs Rpt
169 Zn - DTPA		mg/kg	SRS1201	2.83	2.83	0.22	2.21 - 3.46	1.07	0.14	35
			SRS1202	0.35	0.40	0.07	0.21 - 0.59	0.55	0.06	35
			SRS1203	0.65	0.58	0.09	0.33 - 0.83	0.07	0.06	35
			SRS1204	0.21	0.22	0.09	0.00 - 0.47	0.54	0.04	34
			SRS1205	0.41	0.44	0.07	0.23 - 0.64	0.53	0.04	35
170 Mn - DTPA		mg/kg	SRS1201	14.5	14.1	1.36	10.2 - 18.1	1.28	0.8	28
			SRS1202	8.32	9.48	3.67	0.00 - 20.11	0.85	1.25	28
			SRS1203	10.5	5.92	3.32	0.00 - 15.53	0.16	1.1	28
			SRS1204	2.19	2.27	0.37	1.18 - 3.35	0.18	0.25	28
			SRS1205	3.19	2.67	0.95	0.00 - 5.42	1.88	0.46	28
171 Fe - DTPA		mg/kg	SRS1201	18.0	16.6	3.00	7.9 - 25.3	0.54	2.3	29
			SRS1202	31.1	32.0	4.87	17.9 - 46.1	1.08	3.2	29
			SRS1203	69.5	53.7	15.7	8.1 - 99.3	0.52	4.6	29
			SRS1204	3.85	3.80	1.32	0.00 - 7.63	0.94	1.09	29
			SRS1205	3.32	3.50	0.78	1.24 - 5.76	1.07	0.44	29
172 Cu - DTPA		mg/kg	SRS1201	0.59	0.60	0.09	0.35 - 0.85	0.69	0.04	29
			SRS1202	1.31	1.23	0.12	0.90 - 1.57	0.90	0.09	29
			SRS1203	0.83	0.65	0.08	0.41 - 0.89	0.12	0.06	29
			SRS1204	0.14	0.10	0.040	0.00 - 0.22	0.75	0.03	29
			SRS1205	0.54	0.53	0.10	0.25 - 0.81	0.42	0.06	29



Agriculture Laboratory Proficiency (ALP) Program

Performance Analysis Report - Test Cycle 17

CTS Lab Code: U6291A

Laboratory Performance Summary - Soil 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	SRS1201	SRS1202	SRS1203	SRS1204	SRS1205
101	Saturated Paste Moisture	-1.56	0.28	-0.84	1.49	-1.32
102	pH - sp	0.00	0.04	-2.03	-1.12	-0.12
103	ECe - sp	0.07	0.09	1.09	0.27	0.89
126	NO3-N Cd. Rd.	1.20	-1.00	1.72	2.30	0.75
134	PO4-P Olsen/Bicarb (1:20)	0.47	-1.42	1.68	-0.20	-1.00
140	K Ammonium Acetate	1.81	0.00	1.45	0.73	0.22
141	Ca Ammonium Acetate	-0.06	-1.02	0.50	0.21	-0.12
142	Mg Ammonium Acetate	1.64	0.10	2.96	1.81	0.92
143	Na Ammonium Acetate	4.45	9.27	8.07	7.19	6.88
145	K- Bicarb.	2.09	0.43	4.27	3.84	2.17
169	Zn - DTPA	-0.03	-0.81	0.82	-0.07	-0.37
170	Mn - DTPA	0.32	-0.32	1.37	-0.21	0.55
171	Fe - DTPA	0.46	-0.19	1.00	0.04	-0.23
172	Cu - DTPA	-0.11	0.62	2.12	0.93	0.16