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**ASPAC PLANT
PROFICIENCY TESTING
PROGRAM REPORT**

2016

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Foreword

This ASPAC annual report is the twelfth in the upgraded inter-laboratory proficiency program (ILPP) for plant chemical tests, the first of which occurred in 2004-2005. The report covers three “rounds” each of four specially prepared samples sent to around 39 participants in February, May and August 2016. A similar annual program for soils (reported separately) operated over much the same time period.

The members of ASPAC's LPC, listed on page iv of this report, oversaw the program. The ASPAC Executive is grateful to all of those who contributed to the report, inclusive of staff of Global Proficiency Ltd (GPL), our service provider.

The ASPAC-LPC and the ASPAC Executive Committee also appreciates the effort made by laboratories who utilized the method-specific proficiency program. By participating, they share a commitment to and responsibility for measurement quality, noting that measurement proficiency is only a component of laboratory accreditation to ISO-IEC 17025 standard, which should be an achievement goal for laboratory managers.

Dr Roger Hill
ASPAC-LPC Convenor

Acknowledgements

Those commissioned by GPL to confirm that test plant samples were homogenous prior to circulation for proficiency testing purposes (e.g., DSITI, Queensland, Australia) are also acknowledged, as are operational staff of GPL.

Membership of ASPAC Laboratory Proficiency Committee 2016

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Service Provider Details 2016

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^A **Note:** GPL, under its “PlantChek” logo, is accredited (Accreditation No. 1) by IANZ (the New Zealand accreditation authority) to ISO/IEC 17043:2010 standard, noting that IANZ is a full member of both the International Laboratory Accreditation Cooperation (ILAC), and Asia Pacific Laboratory Accreditation Cooperation (APLAC). GPL is also recognised by NATA (National Association of Testing Authorities of Australia) as a proficiency provider.

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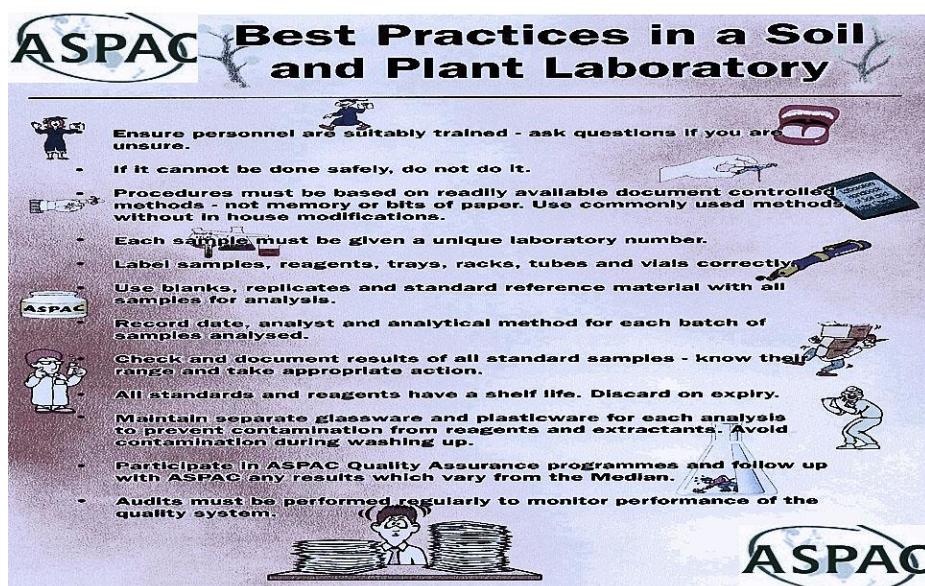
Notes on ASPAC Method-specific Certification: *what it is and what it is not*

In common with almost all soil, plant and water ILPPs worldwide, this plant ILPP used a selection of carefully prepared samples to allow participating laboratories to test and compare their method-by-method measurement performance relative to those of their peers across Australasia. The process is element/test-specific, as each elemental test is assessed separately using internationally-respected non-parametric statistics. Obviously, the peer review process is strongest for tests with most participants, always ≥ 7 and typically well in excess of that number. Regular feedback with “round-by round” regularity provides tangible evidence to guide laboratory managers in their efforts towards measurement excellence.

Subsequently, a published numeric process was used on a test basis and on each of three “rounds” of four samples in the program year to determine whether or not a given laboratory qualified to be ASPAC Certified for that test. For the program year covered by this report, 21 was the maximum number of possible certifications per laboratory. The ASPAC Certifications achieved remained current until superseded by findings from the next corresponding ILPP.

Irrespective of method-measurement quality, it remains the responsibility of laboratory management to pay close attention to total quality management. This involves attention to performance in inter-laboratory proficiency programs while also taking account of variables such as technical competence and procedures, sample preparation, records of corrective actions, customer complaints, instrumental accuracy checks and maintenance, staff training / qualifications, standard-solution preparations, method validation / verification, internal audits, batch quality control, reports to clients, etc. Laboratory accreditation to ISO-IEC 17025 standard covers all of these. The National Association of Testing Authorities (NATA) is responsible for laboratory accreditation and compliance in Australia.

Field sampling, the transport of samples to the laboratory, the within-laboratory drying, grinding, mixing and sub-sampling of samples, and the interpretation of test results for clients are other areas that affect the final outcome of soil and plant chemical testing for diagnostic purposes. For helpful guidelines on these topics, refer to publications by Brown (1994)¹, Peverill et al. (1999)², Rayment (2006)³ and Reuter and Robinson (1997)⁴. The following “poster”, prepared by ASPAC, was designed for within-laboratory use.



-
- ¹ Brown, A.J. (1993). A review of soil sampling for chemical analysis. *Australian Journal of Experimental Agriculture* **33** (8): 983-1006.
² Peverill, K.I., Sparrow, L.A. and Reuter, D.J. (Editors) (1999). “Soil Analysis: an interpretation manual”. (18+369 pp.) CSIRO Publishing, Victoria.
³ Rayment, G.E. (2006). Australian efforts to prevent the accidental movement of pests and diseases in soil and plant samples. *Communications in Soil Science and Plant Analysis* **37**: 2107-2117.
⁴ Reuter, D.J. and Robinson, J.B. (Editors) (1997). “Plant Analysis: an interpretation manual”. (12+572 pp.) CSIRO Publishing, Victoria.

1. Introduction

This not-for-profit, annual report for 2016 consolidates (for ASPAC members and for the public record) program methodology, summary statistics, and a full listing of results by test for three “rounds” of plant chemical testing. Note that in 2016, ASPAC moved to calendar-year programs; all three “rounds” in the program were conducted in 2016 (in February, May and August). An additional round was offered in October 2015 to provide laboratories with continuity from the previous program (2014-15), but this round did not form part of proficiency certification. For historical details on the 2014-15 and earlier ILPPs for both plant and soil samples undertaken by ASPAC, refer to the ASPAC Web Site at <http://www.aspac-australasia.com>.

The report includes a description of how ASPAC confers performance-based, elemental-specific certification to laboratories that participated throughout the program year. To respect confidentiality, the cross-reference between laboratory name and laboratory identification number is not included. However, laboratories certified as proficient for specific tests included in this annual program were documented at the time on ASPAC’s public web site mentioned above.

2. Program Details

2.1 Responsibilities

GPL was contracted by ASPAC as the plant ILPP provider for 2016. Accordingly, GPL had responsibility on a “round-by round” basis for sourcing and preparing samples and for the timely supply of prepared samples to participating laboratories. They also undertook data collation and statistical analysis and “round-by-round” reporting for ASPAC. In addition, they assembled the contents of the summary and “raw” data tabulations provided in Section 3 and Appendix 4 of this report.

Members of the ASPAC-LPC had responsibility to implement and resolve matters of policy and to provide guidance on technical matters specific to plant chemical testing both to GPL and to laboratory participants. The ASPAC-LPC also undertook statistical checks and other actions for quality control purposes, participated in a Technical Advisory Group operated jointly with GPL, and contributed to training workshops. Laboratory managers and staff of those who contributed to this annual program are encouraged to seek help from ASPAC if they are shown to be operating at levels of measurement performance below their peers. Appropriate contacts are members of the ASPAC-LPC and/or State representatives of ASPAC (or equivalent).

Participants receive a unique, confidential laboratory number, subsequently used to identify the origin of each result presented in program reports and listings of results. Typically, this identification number carries forward from one annual program to the next.

2.2 Plant program participation

Some 39 laboratories [27 from Australia, 2 from Fiji, 7 from New Zealand, 2 from Papua New Guinea and 1 from China] participated in the ASPAC plant ILPP in 2016, but numbers of reported results varied by “round” and plant test (see Table 1). The counts for each test and sample are given in Table 1 and in Section 3. Contact details for laboratories that submitted results for any test in one or more of the three “rounds” are provided in Appendix 1.

2.3 Tests, units, laboratory participation and concentration ranges

Three proficiency “rounds” for plant materials – each comprising four samples – were offered in 2016. Participants were invited to analyse each sample using methods normally employed in their laboratory. Tests commonly performed are

documented in Table 1, noting that participant numbers for each element and “round” are also listed. Laboratories were not required to submit results for every one of these tests, although a minimum of seven participating laboratories per “round” were required for any one test to permit meaningful statistical analyses. In addition, Table 1 includes concentration ranges (minimum, median, maximum) for each element across the 12 samples, noting that those concentration ranges derive from “final” populations after removal of “stragglers” and “outliers” (see section 2.6). For 19 of the 22 plant tests, the population average concentration for a given element was greater than corresponding medians (average values not presented), while for the other test (P) the average was less than the median. Moreover, 13 grand median concentrations were lower than their 2014-15 counterparts, 6 were much the same, and 3 were higher.

Table 1. Plant tests, elemental symbols, units, the arithmetic average numbers of results per round submitted by participating laboratories in the ASPAC 2016 Plant ILPP, plus the concentration ranges and the final grand median concentration for all 22 tests.

2016 Plant tests	Symbol	Units	Average Number of participants			Concentration ranges (final) by test across 12 samples, as reported by labs		
			Feb 16	May 16	Aug 16	Minimum	Median	Maximum
Aluminium	Al	mg/kg	25	22	23	2.2	80.5	3230.0
Boron	B	mg/kg	28	26	28	0.7	15.5	52.3
Cadmium	Cd	µg/kg	15	15	15	5.4	42.2	411.0
Calcium	Ca	%	34	30	34	0.01	0.6	2.2
Carbon	C	%	24	20	22	40.1	43.6	50.2
Chloride	Cl	mg/kg	22	18	21	310.0	2830.0	13500.0
Cobalt	Co	µg/kg	18	18	17	11.2	104.8	3180.0
Copper	Cu	mg/kg	33	29	33	2.5	7.0	131.0
Iron	Fe	mg/kg	33	29	32	24.8	117.0	3540.0
Lead	Pb	µg/kg	13	13	13	17.9	79.1	428.0
Magnesium	Mg	%	34	30	35	0.1	0.2	1.2
Manganese	Mn	mg/kg	33	29	33	12.3	46.0	196.0
Molybdenum	Mo	µg/kg	18	17	17	72.9	547.0	9010.0
Nitrate-N	NO ₃ -N	mg/kg	18	15	18	2.8	7.1	3330.0
Nitrogen	N	%	31	26	31	1.0	2.3	3.9
Phosphorus	P	%	33	30	33	0.1	0.3	0.4
Potassium	K	%	34	30	34	0.2	1.3	4.9
Selenium	Se	µg/kg	14	15	13	24.7	58.2	1340.0
Silicon	Si	%	5	6	5	0.01	0.04	0.20
Sodium	Na	mg/kg	32	28	30	10.0	324.5	13900.0
Sulfur	S	%	28	26	27	0.1	0.2	0.7
Zinc	Zn	mg/kg	33	29	33	8.6	26.0	76.8

All but one of the tests in Table 1 were assumed to be total concentrations in the plant material. The assumption is that all results were reported on a 65°C oven-dry basis, not on an “as received” basis. However, some results reported as “totals”, such as Al and Si, may only reflect acid-digestible concentrations.

Details of analytical methods used are not described in detail in this report. Method-indicating codes, however, are summarized in Tables 5 and 6 of Appendix 4, while relevant Codes are included with “raw-data” tabulations in Appendix 4.

2.4 Sample preparation and identification

Before distribution to participants, potential samples were assessed for homogeneity. Specifically, 10 containers of each sample were selected at random from the sub-sampled batch, according to the principles described by Thompson and Wood (1993)⁵. These sub-samples were then tested in duplicate for plant total N, using Dumas combustion. The tests were conducted in one laboratory that was accredited to ISO 17025 standard.

Results from homogeneity testing were subsequently statistically assessed according to ISO REMCO Protocol N231 "Harmonised Proficiency Testing Protocol" of January 1992. Variations between samples were such that all sample batches were considered to meet homogeneity criteria suited to proficiency testing. Examples of the homogeneity data and statistical assessments are summarized in Appendix 2.

In addition to testing for homogeneity, the plant samples were irradiated or otherwise rendered biologically benign to comply with international and/or national biosecurity regulations or requirements⁶.

Ultimately, the samples used in the three "rounds" of the 2016 program were distributed and coded as follows: February 2016: ASP 1602-1 to 1602-4; May 2016: ASP 1605-1 to 1605-4 and August 2016: ASP 1608-1 to 1608-4. The first 2 digits refer to the year in which the "round" took place, the next 2 digits to the month of that year, and the final digit to 1 of the 4 samples per round. The association between sample code and sample type is provided in Table 2. Eight of the 12 test plant samples were sourced from Australia, 3 were from New Zealand and one from Vietnam.

Table 2. Sample identification and the origin of the samples included in the 2016 ASPAC plant ILPP.

Sample ID	Round ID	Sample Type	Origin
ASP 1602-1	2	Olive Leaves	NZ
ASP 1602-2		Clover	AUS
ASP 1602-3		Maize Foliage	NZ
ASP 1602-4		Brown Rice	NZ
ASP 1605-1	5	Lentils	AUS
ASP 1605-2		Capsicum	AUS
ASP 1605-3		Pea Straw	AUS
ASP 1605-4		Rice Leaves	AUS
ASP 1608-1	8	Rhodes Grass	AUS
ASP 1608-2		Bay Leaves	AUS
ASP 1608-3		Barley	AUS
ASP 1608-4		Cabbage	Vietnam

⁵ Thompson, M. and Wood, R. (1993). International harmonized protocol for proficiency testing of (chemical) analytical laboratories. *Journal of AOAC International* **76** (4): 926 – 940.

⁶ Rayment, G.E. (2006). Australian efforts to prevent the accidental movement of pests and diseases in soil and plant samples. *Communications in Soil Science and Plant Analysis* **37**: 2107-2117.

2.5 Data analysis and periodic reporting

Laboratory results, after submission to GPL, were entered into a database and independently checked for data transfer accuracy prior to data processing. From the beginning of 2015, laboratories were able to submit results electronically, as .csv files, for direct transfer to the database. Checks were still made of data loaded in this way. The non-parametric assessment of laboratory performance for each sample and method was performed by an iterative statistical procedure similar to that used in WEPAL inter-laboratory proficiency programs of Wageningen University. This procedure^{7,8} is suited to datasets of as few as seven laboratories, although larger laboratory populations are best. An outline of the “median / MAD” statistical procedure is provided in Appendix 3, with terms described in Table 3.

In addition to medians and MADs, other statistical parameters (also described in Table 3) were calculated before and following the omission of non-conforming results. The “raw” data submitted by participating laboratories on a test-by-test basis are documented in Appendix 4, sometimes rounded for table formatting purposes.

Results submitted by each laboratory were expected to have three significant figures, unless protocol or common sense dictated otherwise. For example, the program accepted data where it was common to report measured concentrations to the nearest third decimal point, such as 0.001 mg/kg for those trace metals reported in mg/kg, and 0.001 % for Na, while two decimal places were accepted for other tests, rather than to three significant figures. However, the program (like others internationally) did not accept a zero value nor a result reported as less than (<) or greater than (>) a specified number. In cases where the expected value was below the laboratory’s lower limit of reporting, the expectation was that the laboratory would either report the raw concentration readout from the instrument in absolute terms or a value half way between that value and zero. For high values, dilution was the expected option.

Interim reports for each “round”, summarizing measurement performance relative to the performance of all laboratories that undertook the same test/s, were routinely and quickly emailed to participants. The main purpose of these Interim Reports was to provide timely feedback and to enable laboratories to take prompt remedial action where appropriate. Interim reports also provided an opportunity to correct for any data-transfer and data-processing misinterpretations. In addition, a newsletter from GPL occasionally went to all participating laboratories. Its main purpose was to assist in the interpretation of interim reports. Also included in GPL’s newsletter was information about upcoming events and operational administration of the program.

Laboratories that participated in the 2016 plant ILPP all received from GPL (on behalf of ASPAC) a laboratory specific, confidential, Annual Summary Report. Each laboratory’s data for the 12 plant samples, the aggregate data from all participants, other relevant statistical data, and whether or not the test/s received ASPAC Certification (if applicable), were provided. The confidential laboratory code number was included.

⁷ Rayment, G.E., Miller, R.O. and Sulaeman, E. (2000). Proficiency testing and other interactive measures to enhance analytical quality in soil and plant laboratories. *Communications in Soil Science and Plant Analysis* 31: 1513-1530.

⁸ Whitehouse, M.W. (1987). Medians and MADs - Statistical methodology used at Wageningen, The Netherlands, for interlaboratory comparisons in the plant exchange program. Ag. Chem. Br. Report, ACU87/36. 10 pp. (Qld Dept. Primary Ind., Brisbane.)

Table 3. Statistical terms and their meanings in the context of this ASPAC annual report

Statistical term	Meaning and/or derivation
Count or number	Original population size.
Maximum i	The highest of a range of values, based on the initial data set.
Minimum i	The lowest of a range of values, based on the initial data set.
Median	The median is the score at the 50 th percentile. It is the middle observation of a sequentially sorted array of numbers, except in the case of an even sample size. Here it is the arithmetic mean of the two observations in the middle of the sorted array of observations. The median of a reasonably sized array of numbers is insensitive to extreme scores.
Mean ^A	The arithmetic mean (or average) is the sum of the values of a variable divided by their number. It represents the point in a distribution of measurements about which the summed deviations equals zero. The arithmetic mean is sensitive to extreme measurements.
MAD	The <u>Median of the Absolute Deviations</u> , calculated as the median of the absolute values of the observations minus their median.
Interquartile range (IQR)	This is calculated by subtracting the score at the 25 th percentile (referred to as the first quartile; Q ₁) from the score at the 75 th percentile (the third quartile; Q ₃). This value is affected by the assumptions made in the calculation of the first and third quartiles, particularly for low population sizes. Moreover, these differences exist within and across statistical software packages. Prior to the 2004-05 rounds, ASPAC used the algorithm employed by EXCEL and some others. From the 2004-05 program, the algorithm employed has been that of SAS Method 4 ⁹ . In summary, IQR = Q ₃ -Q ₁ .
Normalized IQR	This equates to IQR x 0.7413, where the latter is a normalizing factor.
Robust % CV ¹⁰	The robust coefficient of variation (Robust % CV) = (100 x normalised IQR / median). For simplicity, the Robust %CV shown is for the initial results, and also for the “final” population of results for a test after the removal of “outliers” and perhaps “stragglers”, usually following one or two iterations. Note that for Interim Reports, this term is estimated as = (100*MAD*1.483)/ Median, separately for “i” and “f” datasets.
Letter “i” and the letter “f” associated with medians, means, MADs, IQR and Robust %CVs.	The letter “i” relates to the initial data set. The letter “f” relates to the “final” data set, generated after one or two iterations typically after removal of laboratories with statistical “outliers” (if any), and statistical “stragglers” (if any).

A When the mean is greater than the median, the distribution is positively skewed. When the mean is lower than the median, the distribution is negatively skewed.

⁹ SAS Procedure Guide.

¹⁰ “Guide to NATA Proficiency Testing”. 27 pp. (National Association of Testing Authorities, Australia, December 1997).

2.6 ASPAC's criteria for certification of laboratories for plant tests

Subject to satisfactory measurement performance, typically for 12 samples across three sequential “rounds” in a 12-month period, ASPAC awards participating laboratories with a printed, signed and dated *Certificate of Proficiency*. The *Certificate of Proficiency* identifies performance for each test that met criteria set by ASPAC. Certification for a given test (not laboratory accreditation) applies when a laboratory incurs no more than four demerit points for the 12 samples.

Demerit points (if any) were allocated through the identification of “outliers” and “stragglers” by the “median / MAD” statistical procedure mentioned earlier in this report. Appendix 3 provides details on how “outliers” and “stragglers” were identified. Two demerit points were allocated to each statistical “outlier”, while a statistical “straggler” was allocated one demerit point. As no sample result could be both an “outlier” and a “straggler”, a maximum of two demerit points is all that could accrue per sample for a specific test.

For any single “round” of four samples, three (3) was set as the maximum number of demerit points for a specific test. This was done so that unsatisfactory measurement for a test in one “round” did not in itself result in failure to be certified for that test across the three “rounds” in the designated 12-month period.

If a “round” was missed, the maximum number of three demerit points for every test in that “round” was allocated, unless very special circumstances applied and was known or advised expeditiously to the ASPAC-LPC through its Convenor. When the explanation was accepted, performance from the three most recently completed “rounds” was used to assess eligibility for certification. There were no “very special circumstances” in 2016.

Finally, when less than seven laboratories submitted results for a particular test and/or sample, proficiency assessments could not be made statistically with an acceptable level of confidence and hence certification for the specific tests could not be granted. This applied to silicon in this program year.

ASPAC’s *Certificates of Proficiency* are only issued on completion of each annual program of three “rounds”. Nowadays, ASPAC provides details of certified laboratories by test on its public web site. Certifications obtained in the 2016 Plant program remained valid until superseded by findings from the following 2017 ILPP.

3. Summary Statistics

This section provides summary information and data (sometimes rounded only for table formatting purposes) on a test-by-test basis (alphabetical) for each of the 12 samples used across three “rounds” in 2016. The tabulations include values relevant to the iterative “median / MAD” procedure plus other parametric and robust statistics. For the meaning or derivation of the terms used in the tabulated summaries, see Table 3 and Appendix 3. All data are expressed on a dry weight basis.

2016: Aluminium (mg Al/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	24	25	24	25	22	22	22	22	24	24	21	24
Minimum i	23.8	260	63	0.9	6.2	68	87	20	125	2.68	0.296	1.3
Maximum i	62.5	730	143	25.8	67.5	190	313	81.9	3590	164	20.2	26.8
Median i	42.9	540	98.9	16.2	14.3	118	256	59.8	3180	122	3.09	22.2
Mean i	42.4	523	97.6	16	17.2	125	242	57.1	2950	115	4.48	20.5
MAD i	6.95	77	9.15	2.4	2.8	12	25.5	6.7	155	15	1.79	2.7
IQR i	14.6	152	17.9	4.8	4.83	26	50.3	12.3	303	29	3.79	6.03
Robust CV% i	25	21	13	22	25	16	15	15	7	18	91	20
Median f	42.9	540	100	16.2	14	115	259	60.9	3230	124	2.17	22.7
Mean f	42.4	534	99.9	16.7	14.2	116	255	60.3	3220	123	2.61	22.2
MAD f	6.95	76	6	1.5	1.5	14	23.5	5.95	160	14	1.23	1.8
IQR f	14.6	128	11.2	3.23	3.5	19	45	11.8	320	25.8	1.9	3.8
Robust CV% f	25	18	8	15	19	12	13	14	7	15	65	12
Outliers	0	1	2	6	2	5	2	2	3	2	3	2
Stragglers	0	0	2	1	1	0	0	0	0	1	1	1

2016: Boron (mg B/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	29	29	29	26	26	26	26	26	28	28	27	28
Minimum i	14.8	41	10.1	0.072	5.8	40.5	18.7	3.1	2.74	0.418	0.0183	11.2
Maximum i	24.2	57.1	21	7.45	20.2	74.6	32.7	14	32.4	22.3	15.1	18.1
Median i	17.9	49.3	15.8	0.956	7.4	52.8	23	7.07	7.1	18.2	0.894	15.1
Mean i	18	48.3	15.7	1.48	8.53	53.9	23.6	7.35	9.35	16.8	1.64	14.9
MAD i	0.6	1.9	0.9	0.518	0.88	1.75	0.95	1.12	1.23	1	0.306	0.9
IQR i	1.1	4	1.7	1.08	2.73	4.65	1.68	1.96	4.21	2.38	0.618	1.78
Robust CV% i	5	6	8	84	27	7	5	20	44	10	51	9
Median f	17.9	49.5	15.8	0.874	7.13	52.3	22.9	7.07	6.78	18.4	0.685	15.1
Mean f	17.8	49.1	15.7	0.84	7.39	52.3	22.8	7.19	6.75	18.4	0.721	15
MAD f	0.5	0.8	0.55	0.114	0.5	0.7	0.35	0.905	0.6	0.2	0.215	0.9
IQR f	0.85	1.75	0.875	0.336	1.27	1.4	0.625	1.7	1.12	0.375	0.437	1.6
Robust CV% f	4	3	4	28	13	2	2	18	12	2	47	8
Outliers	4	3	3	3	3	5	4	3	5	4	5	2
Stragglers	2	3	4	4	2	4	4	1	5	6	1	1

2016: Cadmium ($\mu\text{g Cd/kg}$)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	15	15	15	14	14	16	16	13	15	16	14	16
Minimum i	16.5	220	92	35	1.67	284	180	3.62	0.001	3.79	2	10
Maximum i	340	310	170	100	402	4000	248	243	647	817	442	480
Median i	28	275	123	38.4	8.2	411	239	10.1	42.2	368	5.43	42.2
Mean i	57.8	269	122	47.3	43.4	610	228	40	119	382	57.2	91
MAD i	5.65	7	8.5	1.5	3	41	3	6.48	4.35	43.5	1.93	2.6
IQR i	20.2	26	15.5	10.9	18.4	89.8	17	29.9	50.9	80.3	35	16.8
Robust CV% i	53	7	9	21	166	16	5	219	89	16	478	30
Median f	28	275	123	38.4	8.2	411	239	10.1	42.2	368	5.43	42.2
Mean f	25.8	273	111	38.9	8.5	369	239	16	42.6	378	5.06	42.2
MAD f	5.65	7	8.5	1.5	3	41	3	6.48	4.35	43.5	1.93	2.6
IQR f	6.55	18.8	11.3	2.5	5	72.5	4.75	12.9	7.5	61.8	2.1	4.9
Robust CV% f	17	5	7	5	45	13	1	95	13	12	29	9
Outliers	4	3	3	5	5	2	6	4	6	2	4	7
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2016: Calcium (%Ca)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	34	34	34	34	35	35	36	36	34	34	34	33
Minimum i	0.737	0.008	1.29	0.469	1.09	0.08	0.281	0.43	0.498	1.71	0.05	0.009
Maximum i	1.23	0.027	1.75	0.61	2.57	1.16	0.922	0.923	3.89	8.39	2.58	0.11
Median i	1.05	0.011	1.57	0.543	2.12	0.971	0.749	0.76	0.893	2.36	0.511	0.031
Mean i	1.04	0.013	1.57	0.541	2.11	0.937	0.75	0.757	0.97	2.52	0.555	0.034
MAD i	0.055	0.002	0.05	0.024	0.1	0.04	0.028	0.014	0.029	0.075	0.016	0.001
IQR i	0.098	0.005	0.098	0.046	0.175	0.068	0.054	0.03	0.062	0.138	0.032	0.002
Robust CV% i	7	32	5	6	6	5	5	3	5	4	5	5
Median f	1.04	0.01	1.56	0.543	2.12	0.971	0.746	0.76	0.893	2.37	0.511	0.031
Mean f	1.04	0.0103	1.57	0.541	2.13	0.974	0.747	0.758	0.894	2.37	0.511	0.031
MAD f	0.03	0.001	0.05	0.024	0.09	0.037	0.02	0.007	0.022	0.04	0.011	0.001
IQR f	0.065	0.001	0.09	0.046	0.145	0.063	0.036	0.009	0.042	0.068	0.019	0.002
Robust CV% f	5	8	4	6	5	5	4	1	4	2	3	5
Outliers	2	5	3	0	4	6	9	13	5	3	7	11
Stragglers	1	6	0	0	0	0	0	1	1	7	1	0

2016: Carbon (%C)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	24	24	24	24	20	20	20	20	22	22	22	22
Minimum i	37.8	42.9	41.8	41	22.2	27.9	35.3	31.1	17.7	14.3	12.7	13.8
Maximum i	54.8	50.1	47.6	45.5	47.7	43.1	48.8	44.1	42.7	52.9	45.7	42.9
Median i	50.2	44.9	43.3	43.3	43.9	40	45.1	41.8	40.1	49.9	43.7	41.3
Mean i	49.7	45.1	43.5	43.2	42.2	39.2	44.2	40.8	39	48.2	42.1	39.8
MAD i	0.25	0.5	0.45	0.5	0.75	0.5	0.8	0.5	0.4	0.3	0.55	0.6
IQR i	0.55	1	0.9	1.13	2.65	1.88	2.25	2.05	1.1	0.75	0.8	1.33
Robust CV% 1	1	2	2	2	4	3	4	4	2	1	1	2
Median f	50.2	44.8	43.2	43.3	44.2	40.3	45.2	41.9	40.1	50	43.9	41.4
Mean f	50.2	44.7	43.2	43.2	44	40.2	45.4	41.9	40.1	50	43.8	41.5
MAD f	0.1	0.4	0.5	0.4	0.25	0.25	0.4	0.1	0.3	0.2	0.3	0.3
IQR f	0.225	0.9	0.8	0.7	0.475	0.45	0.7	0.2	0.5	0.325	0.425	0.6
Robust CV% f	0	1	1	1	1	1	1	0	1	0	1	1
Outliers	6	3	2	3	4	5	5	7	5	5	3	3
Stragglers	2	1	0	1	4	3	2	2	0	1	3	2

2016: Chloride (mg Cl/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	22	22	22	22	18	18	18	18	21	21	21	21
Minimum i	0.2	0.7	0.2	0.05	500	4000	1000	4000	9240	425	825	2770
Maximum i	24700	92200	32200	3700	2220	9790	2560	9750	15700	9000	1730	5570
Median i	2490	9240	3230	310	990	7170	1540	5070	13300	645	1130	4200
Mean i	3420	12300	4380	494	1130	7030	1660	5250	13000	1220	1160	4160
MAD i	290	440	180	64.5	203	230	70	225	600	95	80	180
IQR i	705	705	623	91.3	332	378	123	408	1100	405	160	270
Robust CV% i	21	6	14	22	25	4	6	6	6	47	10	5
Median f	2460	9270	3200	310	975	7200	1520	5070	13500	599	1130	4180
Mean f	2520	9290	3180	309	997	7120	1530	5050	13500	616	1130	4170
MAD f	150	150	105	9	193	240	60	205	350	26	75	95
IQR f	270	285	178	16.5	344	345	100	323	650	65	145	158
Robust CV% f	8	2	4	4	26	4	5	5	4	8	10	3
Outliers	4	4	6	4	2	3	5	2	5	6	3	4
Stragglers	2	3	2	7	0	0	0	0	2	2	0	3

2016: Cobalt (µg Co/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	17	18	18	18	18	18	18	18	18	17	16	17
Minimum i	3	166	3	3	62	1010	10	82.9	1440	63	5	45.6
Maximum i	82	501	100	157	570	1880	206	415	6460	582	100	666
Median i	37	379	47	42.4	186	1550	128	133	3180	81.6	11.2	64
Mean i	36.7	348	50.4	47.2	194	1480	119	145	3130	114	20.7	98.4
MAD i	10	19	8	8.4	6	120	18	13	160	7.6	4.96	11
IQR i	9.6	42.5	17.5	12.3	28.8	303	21.5	25	483	26	14.3	23.5
Robust CV% i	19	8	28	22	11	14	12	14	11	24	95	27
Median f	37	379	47	42.4	186	1550	128	133	3180	81.6	11.2	64
Mean f	33.9	360	50.3	35.9	185	1510	121	132	3160	80.3	13.6	62.9
MAD f	10	19	8	8.4	6	120	18	13	160	7.6	4.96	11
IQR f	9.78	25	16.4	7.75	12	290	20.5	23	290	14.7	12.9	18.1
Robust CV% f	20	5	26	14	5	14	12	13	7	13	86	21
Outliers	1	5	2	4	9	1	2	2	6	3	2	1
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2016: Copper (mg Cu/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	33	33	32	29	29	29	29	32	32	33	33
Minimum i	6.1	6.7	7.8	0.0128	5	92.2	0.55	1	3.32	3.82	2.11	2.53
Maximum i	8.65	13.4	13.1	3.13	11.9	157	3.3	7.01	19.5	8.34	7.57	5.85
Median i	7.35	11.2	11.1	2.4	7.95	130	2.64	5.81	9.34	6.65	5.92	3.13
Mean i	7.36	11.1	10.9	2.27	8.01	129	2.58	5.43	9.56	6.6	5.87	3.26
MAD i	0.42	0.5	0.7	0.28	0.52	10	0.26	0.49	0.71	0.35	0.31	0.23
IQR i	0.75	1	1.3	0.523	1.17	19	0.5	0.8	1.3	0.65	0.63	0.44
Robust CV% i	8	7	9	16	11	11	14	10	10	7	8	10
Median f	7.35	11.2	11.1	2.46	7.97	131	2.66	5.83	9.3	6.65	6	3.07
Mean f	7.36	11.2	11.1	2.5	8.06	130	2.65	5.85	9.35	6.66	6.06	3.07
MAD f	0.42	0.5	0.7	0.24	0.46	9.5	0.255	0.27	0.64	0.295	0.29	0.19
IQR f	0.75	1	1.3	0.47	0.938	18	0.503	0.59	0.99	0.613	0.59	0.36
Robust CV% f	8	7	9	14	9	10	14	8	8	7	7	9
Outliers	0	5	2	4	3	1	1	3	4	4	3	4
Stragglers	0	0	0	1	0	0	0	3	1	2	1	0

2016: Iron (mg Fe/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	33	33	33	29	29	28	29	31	32	33	33
Minimum i	41.2	103	102	9.25	1.94	114	167	77.3	297	79.9	22.4	53.7
Maximum i	209	526	176	35.1	84.1	302	3640	247	4450	143	59.6	105
Median i	53.4	415	139	24.8	71.2	254	288	117	3530	117	46	83.7
Mean i	58.8	405	139	24.2	69.9	245	471	119	3350	115	45.5	81.8
MAD i	4.1	29	8	1.8	3.6	20	27.5	5	210	8	4.2	5.6
IQR i	9.3	46	17	2.4	6.5	39	44.8	10	390	14	8.8	8.5
Robust CV% i	13	8	9	7	7	11	12	6	8	9	14	8
Median f	53	420	139	24.8	71.2	258	290	117	3540	117	46.2	83.9
Mean f	54.2	419	139	24.7	71.6	257	283	117	3580	116	46.3	82.5
MAD f	3.9	18	8	0.4	2.8	17	20	3	150	8	3.8	4.9
IQR f	8.5	31	16	0.725	5.13	32.8	34	6	320	14	7.05	7.95
Robust CV% f	12	5	9	2	5	9	9	4	7	9	11	7
Outliers	1	4	2	5	3	3	4	6	5	1	1	3
Stragglers	0	4	0	8	2	0	1	5	1	0	2	0

2016: Lead ($\mu\text{g Pb/kg}$)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	13	13	13	12	13	13	13	13	13	13	12	12
Minimum i	1	1	1.48	13	5	14	43	10	166	176	3.3	0.024
Maximum i	480	880	1000	188	12000	17000	3000	5000	703	500	500	160
Median i	67	428	110	21.3	17.9	69.1	212	56.1	337	242	36.5	89
Mean i	103	422	180	50.2	1060	1430	416	456	342	256	82.1	80.8
MAD i	7	36	10	6.7	3.45	12	20.5	11.8	60	24	31.6	19.3
IQR i	17	84	21	28.2	166	145	84	52.4	59	41	76.6	30.9
Robust CV% i	19	15	14	98	689	155	29	69	13	13	156	26
Median f	67	428	110	21.3	17.9	69.1	212	56.1	337	242	36.5	89
Mean f	67.1	432	110	20	12.9	59.4	200	38.1	312	235	44.1	95.8
MAD f	7	36	10	6.7	3.45	12	20.5	11.8	60	24	31.6	19.3
IQR f	9.63	49.8	16.8	8.7	8.43	12.9	58.5	34.1	54.8	45.3	61.2	28.1
Robust CV% f	11	9	11	30	35	14	20	45	12	14	124	23
Outliers	3	3	3	3	7	8	3	3	1	1	1	2
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2016: Magnesium (%Mg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	34	34	34	34	30	30	30	30	34	34	35	35
Minimum i	0.0697	0.269	0.19	0.103	0.086	0.785	0.264	0.124	0.273	0.1	0.08	0.125
Maximum i	0.11	0.34	0.332	0.14	0.15	2.03	0.4	0.22	0.929	0.326	0.284	0.455
Median i	0.0808	0.299	0.225	0.123	0.102	1.23	0.31	0.156	0.348	0.125	0.106	0.159
Mean i	0.0819	0.297	0.226	0.123	0.103	1.22	0.312	0.156	0.363	0.132	0.11	0.165
MAD i	0.00365	0.013	0.0075	0.006	0.00405	0.065	0.009	0.008	0.014	0.004	0.004	0.006
IQR i	0.00603	0.0268	0.0178	0.011	0.00758	0.138	0.0158	0.016	0.0275	0.007	0.0095	0.0085
Robust CV% i	6	7	6	7	6	8	4	8	6	4	7	4
Median f	0.0804	0.299	0.225	0.123	0.102	1.23	0.31	0.156	0.348	0.125	0.106	0.159
Mean f	0.0805	0.297	0.223	0.123	0.102	1.21	0.312	0.156	0.351	0.125	0.106	0.158
MAD f	0.0027	0.013	0.005	0.006	0.003	0.06	0.007	0.008	0.012	0.003	0.004	0.0025
IQR f	0.00563	0.0268	0.0133	0.011	0.006	0.125	0.014	0.016	0.021	0.006	0.0085	0.00625
Robust CV% f	5	7	4	7	4	8	3	8	4	4	6	3
Outliers	2	0	2	0	4	3	3	3	6	7	4	6
Stragglers	2	0	4	0	1	0	2	0	1	2	0	3

2016: Manganese (mg Mn/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	33	33	33	29	29	29	29	32	32	33	33
Minimum i	9.91	37.9	53.7	16.2	9.62	92.4	41.5	157	108	28.3	11	23.3
Maximum i	16.2	53.9	95.8	24.6	13.6	220	64.7	230	198	187	21.4	44.9
Median i	12.5	44.1	79	20.5	12.2	140	48.4	196	156	142	16	32
Mean i	12.6	44	78.1	20.7	12.1	139	48.8	194	153	139	15.8	32
MAD i	0.7	2.1	2.7	0.9	0.5	6	2.7	7	8.5	5.5	0.5	1
IQR i	1.2	3.6	6.5	1.5	1	17	5.2	14	13.5	9.5	1	1.8
Robust CV% i	7	6	6	5	6	9	8	5	6	5	5	4
Median f	12.5	43.9	80.1	20.5	12.3	141	48	196	157	142	16.1	32
Mean f	12.5	43.7	79	20.7	12.2	139	47.4	195	156	142	16	32.2
MAD f	0.6	1.95	1.65	0.5	0.5	6	2.25	4	7.5	3.5	0.35	0.5
IQR f	1.18	3.68	3.45	1.4	0.9	13	4.65	10	11.8	6.75	0.625	0.95
Robust CV% f	7	6	3	5	5	7	7	4	6	4	3	2
Outliers	2	1	5	3	2	3	3	5	4	6	8	7
Stragglers	1	0	4	2	0	0	0	3	0	2	1	4

2016: Molybdenum (µg Mo/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	17	18	18	18	17	17	16	17	17	17	18	17
Minimum i	5	176	282	317	2040	4160	27.3	6390	417	58	1430	451
Maximum i	193	1000	770	720	4420	9150	859	15300	10100	52700	352000	163000
Median i	72.9	319	487	491	2420	6000	78.9	9010	862	140	1660	603
Mean i	71.7	351	486	478	2580	5950	158	9100	1380	3270	21200	10200
MAD i	13.6	26	18	20	110	320	11.7	510	96	9.5	70	28
IQR i	20.7	74.5	52.5	58	240	620	80.3	1110	277	50	248	81
Robust CV% i	21	17	8	9	7	8	75	9	24	27	11	10
Median f	72.9	319	487	491	2420	6000	78.9	9010	862	140	1660	603
Mean f	68.1	305	476	480	2400	5830	70.8	8990	765	138	1630	599
MAD f	13.6	26	18	20	110	320	11.7	510	96	9.5	70	28
IQR f	20.4	46.3	27.8	37	168	490	15.5	773	153	17.5	153	16.8
Robust CV% f	21	11	4	6	5	6	15	6	13	9	7	2
Outliers	2	4	6	3	3	4	6	3	4	6	4	5
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2016: Nitrate-nitrogen (mg NO₃-N/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	18	18	18	18	15	15	15	15	19	17	17	19
Minimum i	0.004	0.004	0.006	0.001	1	1	1	1	273	0.157	1.21	519
Maximum i	50.6	37.1	67	55	37.2	5930	60	1760	557	1620	1980	4650
Median i	7.77	11.9	35	4.82	4	3300	6.72	5.65	361	7.16	8.48	740
Mean i	11.4	14.1	34.8	10.7	10.3	3120	12.1	193	381	108	136	929
MAD i	3	3.36	3.65	3.3	2	280	1.88	4.43	32	1.95	6.98	47
IQR i	6	6.81	6.9	6.24	13.7	405	5.4	9.93	73.5	6.2	22.7	90
Robust CV% i	57	42	15	96	254	9	60	130	15	64	198	9
Median f	7.4	11.8	34.8	3.14	3	3330	5.5	4.85	351	6.8	2.82	740
Mean f	7.08	11.6	34.2	3.63	3.21	3300	5.44	5.69	359	6.77	4.7	733
MAD f	1.6	2.11	2.35	2.03	0.915	80	1.22	2.7	13	0.8	1.58	45
IQR f	2.59	3.73	4.85	5	1.47	220	2.27	4.98	24.8	1.56	5.51	84
Robust CV% f	26	23	10	118	36	5	31	76	5	17	145	8
Outliers	3	2	4	4	5	3	3	3	2	3	3	4
Stragglers	2	2	2	0	0	1	1	0	3	3	3	0

2016: Nitrogen (%N)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	31	31	31	31	26	26	26	26	31	31	31	31
Minimum i	0.5	0.5	2.48	0.5	3.47	3.19	0.762	2.24	1.42	0.855	1.52	2.05
Maximum i	3.53	3	22.1	3.57	4.31	4.01	1.22	2.8	1.95	2.02	2.03	2.93
Median i	1.86	2.78	3.05	1.43	3.92	3.76	0.991	2.63	1.78	1.82	1.87	2.7
Mean i	1.86	2.66	3.64	1.47	3.91	3.71	1	2.58	1.76	1.77	1.85	2.68
MAD i	0.04	0.06	0.05	0.05	0.125	0.085	0.0515	0.075	0.03	0.03	0.03	0.07
IQR i	0.085	0.12	0.1	0.09	0.243	0.205	0.0905	0.13	0.055	0.06	0.065	0.135
Robust CV% i	3	3	2	5	5	4	7	4	2	2	3	4
Median f	1.86	2.81	3.05	1.43	3.92	3.77	0.991	2.63	1.78	1.82	1.87	2.7
Mean f	1.85	2.8	3.05	1.42	3.93	3.75	1	2.61	1.78	1.83	1.86	2.7
MAD f	0.025	0.04	0.05	0.04	0.12	0.065	0.049	0.065	0.02	0.02	0.02	0.07
IQR f	0.045	0.075	0.09	0.08	0.23	0.163	0.0835	0.12	0.04	0.035	0.03	0.13
Robust CV% f	2	2	2	4	4	3	6	3	2	1	1	4
Outliers	6	5	4	3	1	2	2	2	5	6	5	1
Stragglers	1	2	0	0	0	2	0	0	3	2	4	0

2016: Phosphorus (%P)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	33	33	33	30	30	30	30	33	32	33	33
Minimum i	0.131	0.096	0.198	0.208	0.221	0.253	0.04	0.23	0.266	0.132	0.231	0.293
Maximum i	0.205	0.147	0.32	0.384	0.326	0.351	0.078	0.34	2.12	1	0.68	2.13
Median i	0.162	0.13	0.26	0.287	0.279	0.31	0.0609	0.277	0.336	0.162	0.28	0.361
Mean i	0.163	0.131	0.26	0.289	0.28	0.308	0.0596	0.278	0.406	0.194	0.29	0.422
MAD i	0.008	0.007	0.01	0.013	0.0115	0.0155	0.0023	0.0085	0.013	0.0075	0.011	0.013
IQR i	0.013	0.013	0.021	0.024	0.0198	0.031	0.0053	0.0158	0.019	0.0138	0.022	0.026
Robust CV% i	6	7	6	6	5	7	6	4	4	6	6	5
Median f	0.162	0.131	0.26	0.287	0.279	0.31	0.0613	0.277	0.336	0.162	0.28	0.36
Mean f	0.163	0.132	0.258	0.288	0.281	0.31	0.061	0.276	0.339	0.163	0.279	0.358
MAD f	0.006	0.0065	0.01	0.011	0.0105	0.015	0.0012	0.007	0.009	0.006	0.011	0.011
IQR f	0.01	0.0133	0.019	0.022	0.0193	0.031	0.0021	0.013	0.017	0.0115	0.02	0.019
Robust CV% f	5	7	5	6	5	7	3	3	4	5	5	4
Outliers	4	1	3	4	2	1	8	5	5	5	4	5
Stragglers	0	0	0	0	0	0	2	0	3	1	0	0

2016: Potassium (%K)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	34	34	34	34	30	30	30	30	34	34	35	35
Minimum i	1.1	0.357	1.35	0.162	0.55	2.43	0.344	1.56	0.337	0.161	0.245	0.362
Maximum i	1.91	0.79	2.69	0.24	1.01	5.96	0.64	2.71	6.63	3.8	4.16	6.78
Median i	1.57	0.411	2.28	0.212	0.868	4.87	0.526	2.24	2.18	0.998	0.353	2.15
Mean i	1.57	0.426	2.23	0.21	0.863	4.78	0.523	2.23	2.22	1.07	0.489	2.2
MAD i	0.07	0.018	0.11	0.014	0.036	0.265	0.017	0.135	0.12	0.05	0.023	0.09
IQR i	0.133	0.0395	0.205	0.026	0.0698	0.485	0.0325	0.258	0.233	0.0863	0.042	0.235
Robust CV% i	6	7	7	9	6	7	5	9	8	6	9	8
Median f	1.57	0.405	2.28	0.213	0.868	4.89	0.53	2.26	2.18	0.998	0.352	2.15
Mean f	1.58	0.408	2.27	0.212	0.869	4.89	0.528	2.26	2.15	1	0.349	2.12
MAD f	0.05	0.0095	0.085	0.014	0.035	0.235	0.012	0.11	0.11	0.0225	0.017	0.08
IQR f	0.1	0.0268	0.15	0.025	0.0653	0.445	0.023	0.22	0.205	0.0575	0.032	0.17
Robust CV% f	5	5	5	9	6	7	3	7	7	4	7	6
Outliers	3	3	5	1	2	3	5	3	3	5	5	3
Stragglers	2	5	1	0	0	1	2	0	0	3	2	1

2016: Selenium ($\mu\text{g Se/kg}$)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	14	15	13	14	15	15	15	15	12	13	14	13
Minimum i	26.1	20	11.4	10	137	1	10	69.4	44.6	20	428	32.1
Maximum i	1060	710	1000	1000	1660	1620	400	2150	3260	1480	1780	1340
Median i	43	44	24.7	60.3	1340	651	30.8	220	177	31.6	813	56
Mean i	143	116	109	203	1170	771	102	618	561	283	903	297
MAD i	12	9.5	6.4	11.3	145	133	5.2	35	103	9.7	43	11.8
IQR i	35.8	30.1	27.9	19.6	422	375	110	789	508	150	70.5	398
Robust CV% i	62	51	84	24	23	43	265	266	213	351	6	527
Median f	43	44	24.7	60.3	1340	651	30.8	220	177	31.6	813	56
Mean f	44.9	37.7	23.6	58.6	1390	681	29.6	223	161	28.7	790	57.2
MAD f	12	9.5	6.4	11.3	145	133	5.2	35	103	9.7	43	11.8
IQR f	16.2	12.3	6.8	10.5	158	205	3.6	33	115	7.83	59.5	18.6
Robust CV% f	28	21	20	13	9	23	9	11	48	18	5	25
Outliers	2	4	4	4	3	5	6	7	3	5	4	4
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2016: Silicon (%Si) NOT ASSESSABLE

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	5	5	5	5	6	6	6	6	5	5	5	5
Minimum i	0.0138	0.0334	0.0211	0.0132	0.00155	0.00583	0.00767	0.0107	0.01	0.007	0.004	0.002
Maximum i	0.15	1.97	2.78	0.156	0.013	0.117	0.25	3.85	3.16	0.137	0.0384	0.0265
Median i	0.024	0.063	0.36	0.021	0.00532	0.0363	0.0408	0.0819	0.0758	0.0585	0.0189	0.0111
Mean i	0.0486	0.518	0.831	0.0482	0.0065	0.0461	0.0747	0.742	0.695	0.0635	0.0213	0.0123
MAD i	0.0098	0.0296	0.339	0.0078	0.00355	0.0063	0.0201	0.0619	0.0658	0.0135	0.0111	0.0061
IQR i	0.0123	0.408	0.862	0.0211	0.00751	0.0101	0.0329	0.291	0.102	0.025	0.015	0.012
Robust CV% i	38	480	177	74	105	21	60	264	100	32	59	80
Median f	0.0228	0.0567	0.213	0.018	0.00532	0.0363	0.0369	0.04	0.0699	0.0585	0.0189	0.0111
Mean f	0.0233	0.051	0.343	0.0213	0.0065	0.0385	0.0396	0.0509	0.079	0.0635	0.0213	0.0123
MAD f	0.0051	0.0063	0.169	0.0039	0.00355	0.0016	0.0078	0.02	0.0329	0.0135	0.0111	0.0061
IQR f	0.00688	0.0148	0.447	0.0103	0.00751	0.0051	0.0109	0.0417	0.0479	0.025	0.015	0.012
Robust CV% f	22	19	156	42	105	10	22	77	51	32	59	80
Outliers	1	2	1	1	0	1	1	1	1	0	0	0
Stragglers	0	0	0	0	0	1	0	1	0	0	0	0

2016: Sodium (mg Na/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	32	33	30	26	28	28	28	29	31	29	32
Minimum i	450	12600	398	3.64	0.0001	0.0098	0.06	0.005	2500	100	45.3	1100
Maximum i	628	19800	660	195	100	150	720	120	11400	2310	160	3670
Median i	513	14000	434	13.5	12.7	75.4	610	44.5	4590	221	90.7	1980
Mean i	526	14300	456	30.1	21.6	75.5	553	49.2	4800	283	95.2	1990
MAD i	19	500	14	5.7	6.9	14.6	40	12.1	140	22	9.3	100
IQR i	50	925	39	18.9	24.3	29.2	73.3	20.1	250	41	16.2	185
Robust CV% i	7	5	7	104	142	29	9	33	4	14	13	7
Median f	512	13900	428	10	10.7	75.4	616	42.1	4590	221	90	2000
Mean f	517	13900	427	10.4	10.4	76	612	43	4600	219	89.4	1990
MAD f	12	300	8	2.1	4.03	12.7	30.5	5.3	50	21	6.2	90
IQR f	34.5	650	19	3.95	7.19	25	58	10.1	90	38	12	168
Robust CV% f	5	3	3	29	50	25	7	18	1	13	10	6
Outliers	3	2	5	7	5	4	3	5	8	2	3	3
Stragglers	3	2	3	4	2	0	1	3	4	0	3	1

2016: Sulfur (%S)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	28	28	28	29	26	26	26	26	27	27	27	27
Minimum i	0.11	0.172	0.175	0.0873	0.122	0.427	0.0631	0.121	0.192	0.117	0.101	0.101
Maximum i	0.208	0.278	0.288	1.11	0.21	0.687	0.133	0.211	0.3	0.174	0.15	0.877
Median i	0.131	0.202	0.21	0.113	0.185	0.516	0.0875	0.17	0.243	0.144	0.132	0.732
Mean i	0.133	0.205	0.209	0.173	0.181	0.518	0.0929	0.172	0.244	0.143	0.132	0.713
MAD i	0.008	0.0105	0.0115	0.006	0.0115	0.025	0.00525	0.01	0.013	0.006	0.008	0.034
IQR i	0.0155	0.0215	0.0225	0.011	0.022	0.048	0.0128	0.016	0.0265	0.017	0.0125	0.0625
Robust CV% i	9	8	8	7	9	7	11	7	8	9	7	6
Median f	0.13	0.201	0.209	0.113	0.185	0.515	0.086	0.17	0.243	0.144	0.134	0.732
Mean f	0.131	0.202	0.206	0.113	0.183	0.51	0.0865	0.173	0.244	0.143	0.134	0.731
MAD f	0.008	0.009	0.011	0.005	0.01	0.021	0.002	0.0065	0.013	0.006	0.006	0.032
IQR f	0.015	0.0195	0.022	0.009	0.017	0.044	0.003	0.0108	0.026	0.016	0.011	0.054
Robust CV% f	9	7	8	6	7	6	3	5	8	8	6	5
Outliers	1	1	1	4	1	3	6	3	2	2	1	2
Stragglers	0	0	0	0	0	0	5	3	0	0	1	0

2016: Zinc (mg Zn/kg)

Statistical parameters	Plant sample identification and values											
	February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
No of results	33	33	33	33	29	29	29	29	32	32	33	33
Minimum i	13.5	21.8	22	10.4	26.1	24.7	5.5	18.4	29.9	41.8	14.7	19.7
Maximum i	18.9	29.7	30.1	19.5	42.8	43.5	13.1	26.1	59.7	92.4	24.8	30.2
Median i	17.6	26.9	27.1	16.8	38	36.8	8.71	23	51.3	77	18.8	25
Mean i	17.2	26.6	27.1	16.3	37.2	37	8.57	22.5	50.9	76.1	19.1	25.3
MAD i	0.9	1.2	1.4	1	2.1	2.4	0.71	1.2	2.25	3.55	0.8	1
IQR i	2.2	2.2	2.8	1.7	5.1	5.3	1.45	2.8	5.48	6.48	1.6	1.7
Robust CV% i	9	6	8	8	10	11	12	9	8	6	6	5
Median f	17.7	27.2	27.6	17	38.3	37.8	8.72	23.4	51.6	77	18.7	24.9
Mean f	17.5	27.1	27.4	16.8	37.9	37.4	8.61	23.1	52.1	76.8	18.8	24.9
MAD f	0.8	1.15	1.3	1.05	1.8	2.85	0.615	0.9	2.1	2.5	0.55	0.6
IQR f	1.5	2.2	2.55	1.68	4.05	5.3	1.22	2.2	4.83	4.9	1.08	1.25
Robust CV% f	6	6	7	7	8	10	10	7	7	5	4	4
Outliers	2	2	2	3	2	1	3	2	4	3	7	6
Stragglers	2	1	0	0	0	0	0	2	0	3	2	3

4. Comments on Measurement Performance

Full evaluation of measurement performance is beyond the scope of this report. These are typically made at ASPAC Workshops and in other national and international fora. It is appropriate, however, to make a few observations.

The grand median robust % CVs across the 12 samples by test in 2016, after the removal of “outliers” and “stragglers”, ranged from 1.0 (for C) to 24.5 (NO₃-N), which is much the same as the range of final median robust % CVs recorded in 2014-15. Figure 4.1 presents, in ascending order of %CVs for 2016, grand median robust %CVs for program years 2014-15 and 2016. Across all tests, there was no consistent difference between robust %CVs in the two programs, although this statement ignores the likelihood that robust %CV can be influenced by analyte concentrations. For the 2016 Plant Program Year, the elements (tests) with robust %CV most influenced by analyte concentrations (highest %CVs at lowest concentrations) were, in decreasing order, B, Pb, Ca and Cl, with coefficients of determination (r^2) for separate power functions of 0.58, 0.35, 0.34 and 0.30, respectively.

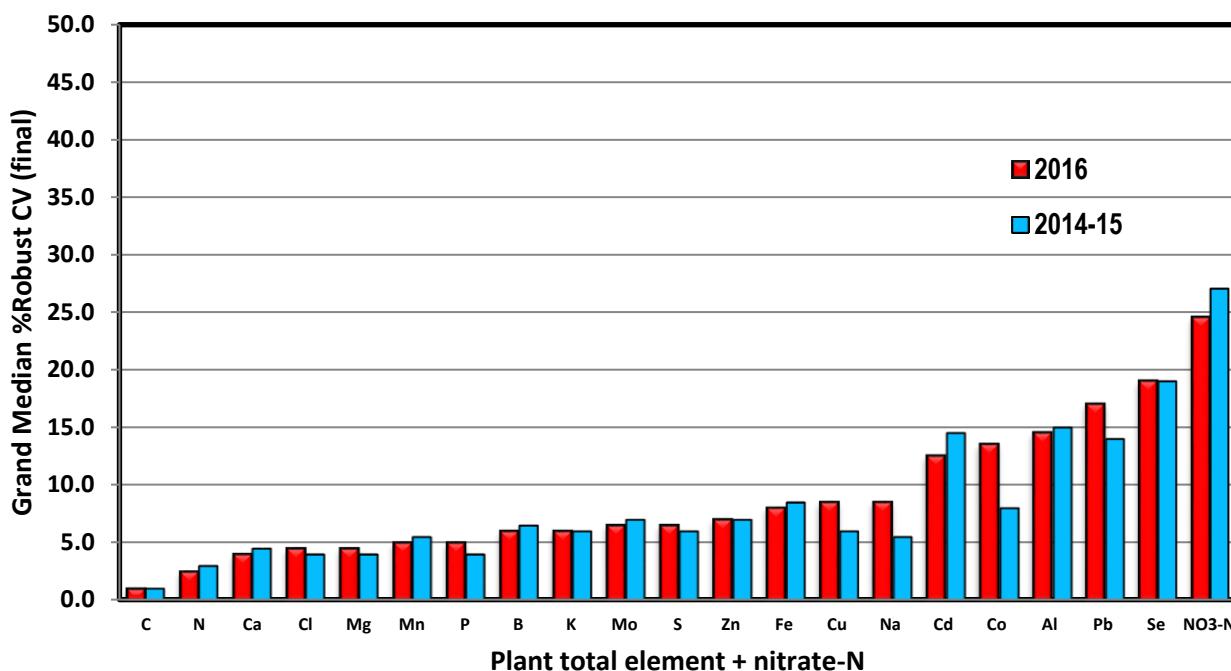


Figure 4.1. Grand median robust %CVs (final) for plant program years 2016 and 2014-15, excluding plant Si which was not assessed in either year.

The sequence for test samples with lowest (best at 6.0%) to highest grand median %CVs (worst at 8.5%) across all 22 elements (including Nitrate-N and with Si included) were 1602-2 = 1602-3 = 1608-4 < 1605-3 = 1608-1 = 1608-3 < 1602-4 = 1605-2 = 1605-4 < 1602-1 = 1608-2 < 1605-1, all with the prefix ASP. Collectively, the program grand median for the 12 test samples was 7.0%.

Across all 6424 reported plant test results in 2016, 14.2% were statistically assessed to be “outliers” and 4.2% were assessed to be “stragglers”, which were very similar to the corresponding percentages in 2014-15 (14.3% and 3.9% respectively). For individual elements, the range of “outliers”, expressed as percentages of the number of reported results for the particular test, ranged from 8.3% (for S) to 30.4% (Se), while those for “stragglers” ranged from zero% (Cd, Co, Mo, Se) to 11.3% (B). The lack of stragglers for Cd, Co, Mo and Se may reflect the fact that most laboratories conducting these tests have switched to the more sensitive and appropriate ICPMS analytical finish. As a result, those few laboratories still using ICPOES for these tests would be likely to identify as outliers rather than as stragglers.

Median concentrations of the elements essential for plant growth were generally within the bounds expected of healthy plants, with the exception of nitrate-N, where the median of 7.1 mg/kg was well below concentrations associated with those plant parts (e.g. leaf petioles) where nitrate-N is often measured. However, three samples had median nitrate-N

concentrations of 351, 740 and 3330 mg/kg, which provided a test of performance at acceptably high concentrations. There was a reasonably small range in Si concentrations, which may reflect the presence of acid-soluble results as against true total Si ranges. For all other elements, the range in concentrations across all samples was broad, and for elements where soil contamination and plant toxicity may be a concern (e.g. heavy metals, chloride and sodium), maximum concentrations were high enough to test proficiency for these purposes.

Appendix 1: List of laboratories (including contact details at the time) who participated in ASPAC's Plant ILPP in 2016, arranged by country

Name (position)	Facility	Street and/or Postal Address	Country	Email
Craig Newman (Laboratory Manager)	AgVita Analytical	4 Thompson's Road, Latrobe, TAS 7307 PO Box 188, Devonport, TAS 7310	Australia	cnewman@agvita.com.au
Tim Thompson (Operations Manager)	APAL Laboratory Pty Ltd	489 The Parade, Magill, SA 5072 PO Box 327, Magill, SA 5072	Australia	tim@apal.com.au
Shannon Lawson (Quality Manager)	Bioscience	488 Nicholson Rd, Forrestdale, WA PO Box 5466, Canning Vale South , WA	Australia	Shannon.Lawson@biosciencewa.com
Jenny McGuire (Manager – Inorganics)	ChemCentre (WA)	Resources & Chem Precinct Centre, Conlon, WA 6102 PO Box 1250 Bentley Delivery Centre, WA 6983	Australia	JMcGuire@chemcentre.wa.gov.au
Chris Gendle (Chemist)	CSBP Ltd – Soil and Plant	2 Altona St, Bibra Lake, WA 6163	Australia	chris.gendle@csbp.com.au
Nell Peisley (DNA Sequencing Coordinator)	CSIRO Analytical Chemistry Group - Agriculture	Clunies Ross St, Acton, ACT 2601 GPO Box 1600, Canberra, ACT 2601	Australia	nell.peisley@csiro.au
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Appendix 2: Homogeneity data and statistical assessments* for Total Plant N% (Dumas N) on the 12 test plant samples in 2016.

Sample name	ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4	
Sub-sample													
1	Rep 1	1.78	2.66	2.96	1.31	3.84	3.64	0.963	2.61	1.72	1.80	1.76	2.64
	Rep 2	1.79	2.69	3.01	1.31	3.84	3.62	0.963	2.62	1.72	1.80	1.78	2.63
2	Rep 1	1.79	2.74	2.97	1.31	3.84	3.64	0.980	2.63	1.71	1.81	1.76	2.67
	Rep 2	1.80	2.72	2.96	1.30	3.82	3.62	0.972	2.63	1.70	1.80	1.78	2.67
3	Rep 1	1.79	2.72	2.98	1.32	3.84	3.65	0.943	2.63	1.71	1.82	1.77	2.66
	Rep 2	1.79	2.73	2.97	1.31	3.84	3.60	0.935	2.62	1.71	1.79	1.78	2.67
4	Rep 1	1.78	2.68	2.97	1.30	3.86	3.64	0.987	2.62	1.71	1.81	1.80	2.65
	Rep 2	1.79	2.68	2.97	1.30	3.82	3.60	0.973	2.62	1.71	1.80	1.81	2.64
5	Rep 1	1.79	2.74	2.96	1.30	3.82	3.63	0.938	2.62	1.73	1.81	1.79	2.65
	Rep 2	1.79	2.72	2.97	1.32	3.82	3.61	0.929	2.62	1.71	1.81	1.79	2.65
6	Rep 1	1.77	2.71	2.96	1.31	3.84	3.64	0.975	2.61	1.70	1.82	1.78	2.66
	Rep 2	1.77	2.71	2.98	1.32	3.82	3.63	0.962	2.62	1.70	1.81	1.78	2.67
7	Rep 1	1.79	2.69	2.97	1.32	3.85	3.66	0.944	2.61	1.72	1.80	1.80	2.65
	Rep 2	1.79	2.69	2.96	1.31	3.83	3.63	0.939	2.62	1.72	1.82	1.76	2.68
8	Rep 1	1.79	2.70	2.97	1.30	3.84	3.63	0.961	2.62	1.73	1.84	1.79	2.65
	Rep 2	1.78	2.71	2.99	1.31	3.84	3.63	0.958	2.62	1.71	1.82	1.78	2.67
9	Rep 1	1.80	2.71	2.98	1.30	3.85	3.65	0.950	2.61	1.71	1.81	1.78	2.66
	Rep 2	1.79	2.72	2.95	1.30	3.82	3.62	0.956	2.62	1.71	1.82	1.78	2.65
10	Rep 1	1.78	2.68	2.95	1.32	3.84	3.63	0.935	2.60	1.71	1.82	1.77	2.65
	Rep 2	1.78	2.69	2.98	1.31	3.82	3.62	0.938	2.61	1.71	1.81	1.77	2.65
Mean		1.79	2.70	2.97	1.31	3.83	3.63	0.955	2.62	1.71	1.81	1.78	2.66
Analytical SD		0.00003	0.0001	0.0002	3.4E-05	0.0002	0.0003	3.4E-05	4.6E-05	2.7E-05	8.9E-05	0.0001	6.3E-05
Sampling SD		3.8E-05	0.0003	0	1.4E-05	0	0	0.0003	6.8E-06	4.5E-05	3.4E-05	4.6E-05	7.9E-05
SD proficiency data		0.04	0.0588	0.069	0.0695	0.119	0.1097	0.0643	0.091	0.026	0.0276	0.0387	0.099
Status		H	H	H	H	H	H	H	H	H	H	H	H

* Homogeneity statistics calculated according to:-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**(1): 145-196. IUPAC Tech. Report.

Appendix 3: Statistical procedures used by ASPAC for its contemporary plant ILPP

Refer to Table 3 for a description of most statistical terms and their meaning. Of most significance is the “median / MAD” non-parametric, iterative procedure for identifying “outliers” ($\dagger\dagger$) and “stragglers” (\dagger) within datasets for particular tests and samples from multiple (typically 7 or greater) laboratories. See references in the body of the report for more details. Also, the median (μ) is regarded as a good estimate of the true mean, while the MAD; i.e., the median of the absolute deviations from the median, (@), is regarded as a good estimate of the standard deviation.

After tabulating the data with a separate column for each sample result and a separate row for each laboratory, calculations were applied iteratively. Each iteration operated at an action level of $[(X - \mu)/f@] > 2$, where “X” is the value reported by the laboratory (one replicate assumed), “ μ ” is the median of the population of values, and “ $f@$ ” is a code for the Gaussian distribution of the sample size “n”, approximated by $[0.7722 + 1.604/n * t]$, with $t =$ the Student’s “t” for 5% (two-tailed) with $n-1$ degrees of freedom]. Excluding any case when a laboratory reported no result (or a non-numeric value) [these were automatically excluded], the laboratories at first iteration with an “ASPAC score” > 2 were rated as “outliers” ($\dagger\dagger$). Following their removal (if any), the remaining population of laboratory data were subject to a second iteration involving a recalculation of the “ASPAC score”. When again > 2 , the relevant laboratories were rated as “stragglers” (\dagger).

The other statistics summarized in Table 3 were calculated on the same populations of data. Only the first (i) and second (final; f) values appear in the data summaries in Section 3.

Appendix 4: Plant analytical method codes and “Raw” program data for the 12 plant samples across three “rounds” in 2016.

The following tabulations of “raw” plant analytical data, as reported by participating laboratories, are listed in approximate alphabetical order by element after removal of unnecessary precision, this following completion of statistical tests. Precision adjustments were performed only to assist “raw” data presentation. Statistical “outliers” and “stragglers” are indicated by $\dagger\dagger$ and \dagger , respectively. All results are understood to be on an oven dry basis. Method Codes listed in the “raw data” tabulations are described in Tables 5 and 6.

Table 5. ASPAC method indicating codes (MIC) allow laboratories to record the preparation, extraction and/or digestion techniques used for each plant test/element reported in this ILPP. A separate ASPAC Code (see Table 6) is required to identify relevant instrumental and/or analytical finishes.

Preparation / Extraction / Digestion Technique	ASPAC MIC Code
Dry Ashing with HF, and uptake in HCl	AA
Dry Ashing with HF, and uptake in HNO ₃	AB
Dry Ashing with HF, and uptake in H ₂ SO ₄	AC
Dry Ashing without HF, and uptake in HCl	AD
Dry Ashing without HF, and uptake in HNO ₃	AE
Dry Ashing without HF, and uptake in H ₂ SO ₄	AF
Extraction with acid(s)	BA
Extraction with water	BB
Finely-divided dry sample	CA
Microwave digestion - closed system <u>with HF</u> , and final medium H ₂ SO ₄	DA
Microwave digestion - closed system <u>with HF</u> , and final medium HNO ₃ and/or HCl	DB
Microwave digestion - closed system <u>with HF</u> , and final medium HClO ₄	DC
Microwave digestion - closed system <u>without HF</u> , and final medium H ₂ SO ₄	DD
Microwave digestion - closed system <u>without HF</u> , and final medium HNO ₃ and/or HCl	DE
Microwave digestion - closed system <u>without HF</u> , and final medium HClO ₄	DF
Microwave digestion - open system <u>with HF</u> , and final medium H ₂ SO ₄	DG
Microwave digestion - open system <u>with HF</u> , and final medium HNO ₃ and/or HCl	DH
Microwave digestion in open system <u>with HF</u> , and final medium HClO ₄	DI
Microwave digestion - open system <u>with HF</u> , and final medium HNO ₃ / peroxide	DJ
Microwave digestion - open system <u>without HF</u> , and final medium H ₂ SO ₄	DK
Microwave digestion - open system <u>without HF</u> , and final medium HNO ₃ and /or HCl	DL
Microwave digestion - open system <u>without HF</u> , and final medium HClO ₄	DM
Microwave digestion - open system <u>without HF</u> , and final medium HNO ₃ / peroxide	DN
Pellet (fused)	EA
Pellet (pressed powder)	EB
Schoeniger combustion with Pt and O ₂ , with uptake in HCl	FA
Schoeniger combustion with Pt and O ₂ , with uptake in HNO ₃	FB
Wet digestion - open system <u>with HF</u> , and final medium H ₂ SO ₄	GA
Wet digestion - open system <u>with HF</u> , and final medium HNO ₃ and /or HCl	GB
Wet digestion - open system <u>with HF</u> , and final medium HClO ₄	GC
Wet digestion - open system <u>with HF</u> , and final medium HNO ₃ / peroxide	GD
Wet digestion - open system <u>without HF</u> , and final medium H ₂ SO ₄ (includes Kjeldahl – not quantitative for NO ₃)	GE
Wet digestion - open system <u>without HF</u> , and final medium H ₂ SO ₄ (includes Kjeldahl – quantitative for NO ₃)	GF
Wet digestion - open system <u>without HF</u> , and final medium HNO ₃ and /or HCl	GG
Wet digestion - open system <u>without HF</u> , and final medium HClO ₄	GH
Wet digestion - open system <u>without HF</u> , and final medium HNO ₃ / peroxide	GI
Wet digestion - open system <u>without HF</u> —diacid (HNO ₃ , HClO ₄)	GJ
Wet digestion - open system <u>without HF</u> —triacid (HNO ₃ , H ₂ SO ₄ , HClO ₄)	GK
Others	ZZ

Table 6. ASPAC's method indicating codes for instrumental and/or analytical finishes (IA-MIC) to allow laboratories to record the instrumental and/or analytical finishes associated with each plant test/element reported in this ILPP. A separate ASPAC Code (see Table 5) is used to identify relevant preparation/extraction/digestion techniques.

Instrumental and/or analytical finish	ASPAC IA-MIC Code
AAS-ETA: [Atomic Absorption Spectrophotometry Electro-Thermal Atomisation] background correction, without chemical modifier	01
AAS-ETA with deuterium background correction, without chemical modifier	02
AAS-ETA with Zeeman background correction, without chemical modifier	03
AAS-ETA with pulsed hollow cathode lamp background correction, without chemical modifier	04
AAS-ETA without background correction, with chemical modifier	05
AAS-ETA with deuterium background correction, with chemical modifier	06
AAS-ETA with Zeeman background correction, with chemical modifier	07
AAS-ETA with pulsed hollow cathode lamp background correction, with chemical modifier	08
AAS-Flame, without background correction, using air-acetylene	09
ASS – carbon rod –graphite furnace	10
AAS-Flame with deuterium background correction, using air-acetylene	11
AAS-Flame with Zeeman background correction, using air-acetylene	12
AAS-Flame with pulsed hollow cathode lamp background correction, using air-acetylene	13
AAS-Flame without background correction, using N ₂ O-acetylene	14
AAS-Flame with deuterium background correction, using N ₂ O-acetylene	15
AAS-Flame with Zeeman background correction, using N ₂ O-acetylene	16
AAS-Flame with pulsed hollow cathode lamp background correction, using N ₂ O-acetylene	17
Chromatography	18
Cold vapour technology	19
Flame emission	20
Gravimetric	21
Hydride technology and similar	22
ICP-AES	23
ICP-MS	24
Infrared — near-range (NIR)	25
Infrared — mid-range (MIR)	26
Ion selective electrode	27
Ion chromatography	28
Neutron activation analysis	29
Spectrophotometry (manual)	30
Spectrophotometry (auto; segmented flow, FIA, DA, etc.)	31
Titrimetric	32
Turbidimetric / or Nephelometric	33
Voltammetry (direct)	34
Voltammetry (stripping)	35
X-ray fluorescence	36
Dumas (e.g., Leco)	37
Others (specify)	38

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Aluminium (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	53.5	609	108	20.9	15.1	181 †	282	64.4	3570	135	2.17	21.6
8888	DE-23	33.1	575	76.1	17.3	17.5	130	298	81.9	3470	149		23.9
10156	GI-23	54	701	143 ††	24.8 †	13.7	129	253	62.9	3330	164	6.86 †	26
10173	DN-23	35.3	412	84.2	15.6	15.2	169 †	278	62.3	3060	134	13 ††	21.6
11035	GG-24		280		0.9 †	6.2 †	68 †	87 ††	20 ††	2000 ††	49 ††		1.3 ††
11079	DE-23	49.8	663	112	16.2					3390	152	1.77	25.4
20204	GJ-23	43.9	540	98.5	14.7								
21043	GJ-23	34.8	618	98.7	16.1	15.2	111	260	60.6	3070	107	3.4	16.8
21100	DE-24	40.3	593	102	14.3	14	107	267	67	125 ††	2.68 ††	20.2 ††	20.2
21138	DE-23	49.6	636	98.6	19.1	14	190 †	300	64	2900	140		24
21196	DE-23	49.9	615	91.5	19.7					3590	124	2.21	26.1
21229	GI-23	43.8	496	101	16.7	33.4 ††	119	224	51.3	3250	120	4.88	23.8
21230	GG-23	44.1	571	108	18.6	7.47	85.7	195	53.2	2670	84	0.296	12.2 ††
21232	DE-23	62.5	730	114	25.5 †	18.4	138	302	69.1	3150	143	2	24.4
50004	DE-23					14	181 †	313	66.6	3050	131	3.09	23.3
50005	GJ-23	42	534	101	16.2	12.7	115	235	69.1	3110	120	5.49	20.9
50011	DE-23	46.1	496	110	17.7	12.5	110	231	53.2	3310	123	3.6	22.7
50012	DN-23	42	540	99	15	20	130	270	59	3200	115	1.7	17
50014	DE-23	51	639	112	14	14.6	153	258	58	3230	124	0.468	24
50017	DE-23	41.1	520	96	25.8 †	67.5 ††	129	241	61.1	3260	119	9.7 ††	18.3
50020	GI-23	30	314	86	10.7 †	11.1	89.2	178	48	3020	96	5.5	19
50024	GJ-23	26.1	353	63 ††	12.7	18.8	110	259	45.4	3390	106	1.24	16.8
50027	DN-23	49.7	463	104	15.9	17	117	209	51.6	3480	134	1.7	22.7
50029	AD-23	23.8	408	68.7 †	5.28 †	8.03	83	145 ††	31.7 ††	1050 ††	85.5	0.882	13.6 †
52283	GJ-23	40.2	508	97.1	20	11.4	112	241	56.6	3070	103	3.99	26.8
52427	ZZ-23	32	260 ††	69 †	7 †								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Boron (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	17.7	50.4	15.9	0.505	6.70	51.0	21.5	7.24	7.05	18.4	0.615	15.8
8888	DE-23	17.5	51.2	15.7	0.072	7.98	53.9	24.7	8.04	10.5 †	22.3 ††	0.523	18.1 †
10156	GI-23	17.9	51.6	16.7	2.1 †	10.1 †	57.2 †	25.1 †	9.15	6.26	15.4 †	2.14 ††	12.9
10173	DN-23	16.2	44.1 †	15.0	0.791	6.66	52.9	22.9	7.20	5.94	16.2 †	0.64	13.2
11035	GG-24	24.2 †	49.8	21.0 ††		6.30	54	21	5.00	5.4	16 †	0.51	13
11079	DE-23	18.5	52.7	16.8	0.32					11.2 †	20.7 †	0.59	16.3
20204	GJ-23	17.3	48.7	15.2	0.967	9.61	49	22.8	5.66	7.53	18.2	0.96	16
21043	GJ-23	18	46.3	13.2 †	3.62 †	9.59	52.3	22.5	6.97	8.44	19.9	3.28 ††	16.5
21100	DE-24	18.3	49.6	16.8	0.372	7.44	52	23.4	8.34	17.5 ††	0.418 ††	15.1 ††	15.1
21138	DE-23	18.4	50.0	16.1		7	58 †	23	7.00	8	18		16
21196	DE-23	16 †	46.0	15.4	1.84					10.9 †	4.06 ††	1.23	16.8
21229	GI-23	18	49.2	15.3	0.929	7.45	51	23	6.45	6.53	18.2	0.894	15.2
21230	GG-23	17.7	45.3	10.1 ††	2.11 †	10.6 ††	53	25.4 †	9.33	2.74 ††	14.3 ††	0.0183	11.2 ††
21232	DE-23	18.7	50.0	16.1	0.945	7.35	58.1 †	23.2	8.11	10.4 †	18.5	0.264	15
50004	DE-23	19.5	57.1 ††	19.1 ††	1.12	9.04	74.6 †	30.2 ††	9.38	6.35	19.3	0.685	14.8
50005	GJ-23	17	43.3 †	16.9	0.942	7.01	51.9	22.6	8.26	7.15	18.2	1.02	15.1
50008	AD-23	17.2	45.6	14.3	1.59	6.4	40.5 †	20.7 †	3.1 ††	5.8	19.1	0.92	15.3
50011	DE-23	18.1	49.3	15.8	0.874	6.8	51.9	23.8	6.49	6.82	18.4	1.01	15.7
50012	DN-23	18	50.0	17	2.2 †	16 ††	59 †	31 ††	14 ††	7.5	18	0.728	14
50014	DE-23	18	51.4	16	0.0725	7.3	56.4	21.9	6.7	6.93	18.6	0.604	15.5
50017	DE-23	17.3	47.8	14.3	1.2	8.75	43.6 †	18.7 ††	5.49	7.3	14.9 †	1.65 †	14.6
50020	GI-23	17.8	49.5	16.1	0.97	5.8	73.6 †	20.2 †	5.72	4 †	15 †	0.4	11.7 ††
50024	DE-23	18.6	50.0	15.8	0.76	6.63	49.5	22.7	6.38	18.1 ††	18.2	1.08	15.2
50025	GJ-23	14.8 †	41.2 ††	13.1 †	3.18 †	7.93	52.8	23	7.14	6.1	19.5	2.97 ††	17
50027	DN-23	16.5	46.6	15.1	0.83	6.25	51.6	21.4	6.23	22.5 ††	17.5	0.77	14.1
50029	AD-23	17.4	44.8 †	14.4	0.863	7.13	48 †	22.9	3.26 †	5.69	18.5	0.47	15
50032	DE-30	21 †	49.5	18.8 †	1.9 †	9.8 †	53	32.7 ††	12.7 ††	32.4 ††	18.5	1.2	14.2
52283	GJ-23	20.1 †	49.2	15.7	7.45 †	20.2 ††	52.7	23.5	7.88	6.74	16.6	3.97 ††	13.8
52427	ZZ-23	16 †	41.0 ††	13 †									

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Cadmium ($\mu\text{g/kg}$)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-24	16.5	281	127	37.5	3.41	402	236	3.62	47.5	411	9.1	44
10156	GI-23					47.6 ††	336	223 ††	51.4 ††	468 ††	817 ††	442 ††	480 ††
10173	DN-23	20.3	290	117	39.3	1.67	405	234		41.3	368	4	35.7
11035	GG-23					4000 †	240				450		200 ††
11079	DE-23	90.0 †	220 ††	100									
20204	GJ-23	24.0	222 ††	110	49.1 †	10.2	284	209 ††	26.1	48	315	5.3	37
21100	DE-24	29.4	275	118	40.4	26 ††	461	224 ††	42 ††	41.9	3.79 ††	48.8 ††	48.8
21138	DE-24	53.1 †	254	110	35.0		340	220 ††		40	350		40
21230	GG-24	19.0	285	121	40.0	5.2	427	243	9.1	34.5	271	5.43	28.8 ††
50004	DE-24	35.3	282	170 ††	38.7	7.39	411	248	22	38.8	349	3.75	39.1
50005	GJ-23	33.1	253	111	51.7 †	16.1	344	235	19.8	49.2	389	7.74	50.5
50011	DE-24	24.0	261	124	44.0	8.2	370	239	8	42.4	411	3.8	42.3
50012	DN-24	340 †	290	92	100 †	29 ††	370	240	40 ††	100 ††	462	87.8 ††	59.4 ††
50014	DE-24	28.0	274	161 ††	38	8.4	434	239	10.1	94 ††	385	3.5	42
50017	DE-23					402 ††	594 †	234	243 ††	647 ††	491	172 ††	244 ††
50020	GI-23	101 †	310 ††	162 ††	62.2 †	15.9	291	200 ††	18.2	0.001 ††	351	6	54 ††
50024	GJ-23	26	265	96	49 †	26 ††	285	180 ††	27	89 ††	288	2	10 ††
52427	ZZ-24	28	270	110	37								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Calcium (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	0.615	1.12	0.783	0.012	0.065	2.27	1.03	0.301	0.515	0.983	0.031	0.558
8888	DE-23	0.599	1.05	0.73	0.007	0.069	2.3	1.02	0.318	0.546	0.989	0.028	0.576 †
10156	GI-23	0.639	1.24 ††	0.833 ††	0.0122	0.0617	2.24	1.02	0.304		0.899	0.032	0.487 †
10173	DN-23	0.599	1.03	0.731	0.0158 †	0.0583	2.2	1	0.276	0.482	0.918	0.0293	0.495
10181	GF-23	0.598	1.07	0.747	0.0092	0.0725	2.26	1.09 ††	0.309	0.535	0.998	0.028	0.512
11035	GG-23	0.55	0.98	0.7	0.01	0.06	2.3	0.95 †	0.32	0.51	0.93		0.53
11079	DE-23	0.7 †	1.17	0.85 ††	0.01					0.577 ††	1.12 ††	0.038 ††	0.633 ††
20204	GJ-23	0.608	1.07	0.773	0.016 †	0.09 ††	2.25	1	0.34	0.512	1	0.0376 ††	0.553
21043	GJ-23	0.59	1.06	0.751	0.009	0.063	2.2	1.02	0.295	0.527	0.945	0.031	0.537
21100	DE-24	0.591	1.06	0.765	0.00774	0.07	2.26	1.04	0.31	0.548	0.984	0.0317	0.544
21138	DE-23	0.619	1.07	0.749	0.0098	0.063	2.4 †	1	0.31	0.49	0.95	0.028	0.54
21190	AD-09	0.603	1.05	0.763	0.041 †	0.0829 ††	2.21	1.01	0.331	0.473	0.943	0.00725 ††	0.472 †
21193	GJ-11	0.71 †	1.2	0.86 ††	0.019 †							0.03	0.53
21196	DE-23	0.555	1.02	0.703	0.0091					0.568 †	0.36 ††	0.032	0.626 ††
21229	GI-23	0.622	1.09	0.754	0.0101	0.0656	2.21	1	0.303	0.5	0.968	0.0309	0.526
21230	GG-23	0.632	1.12	0.772	0.00991	0.064	1.87 †	0.999	0.277	0.422 ††	0.819 ††	0.0255 ††	0.452 ††
21232	DE-23	0.643	1.08	0.768	0.012	0.07	2.24	1.01	0.31	0.506	1.04	0.033	0.536
21234	GH-09									0.52	1.02	0.03	0.54
50004	DE-23	0.649	1.1	0.778	0.02 †	0.07	2.44 †	1.09 ††	0.342	0.503	1.02	0.045 ††	0.538
50005	GJ-23	0.595	1.11	0.777	0.0101	0.0623	2.4 †	1.03	0.274	0.512	0.966	0.0301	0.522
50006	GE-11									1.2 ††	1.99 ††	0.124 ††	1.32 ††
50008	GJ-23	0.622	1.11	0.787	0.009	0.063	2.1 †	0.972	0.283	0.532	0.993	0.031	0.56
50011	DE-23	0.631	1.07	0.774	0.011	0.069	2.26	1.06 †	0.32	0.53	0.99	0.03	0.56
50012	DN-23	0.61	1.1	0.76	0.0092	0.064	2.2	1	0.3	0.509	0.932	0.0297	0.524
50014	DE-23	0.589	1.06	0.75	0.009	0.067	2.34 †	0.986	0.296	0.505	0.906	0.031	0.515
50017	DE-23	0.6	1.03	0.774	0.01	0.0823 ††	2 †	0.925 ††	0.263	0.522	0.855 †	0.04 ††	0.506
50020	GI-23	0.6	1.09	0.739	0.0085	0.0542	2.94 †	0.89 ††	0.258 †	0.492	0.932	0.029	0.512
50021	GJ-23	0.562	0.966	0.671 ††	0.011	0.061	1.86 †	0.995	0.28	0.404 ††	0.79 ††	0.027	0.441 ††
50024	GJ-23	0.553	0.996	0.693	0.009	0.064	2.2	1.04	0.303	0.497	0.909	0.028	0.526
50025	GJ-23	0.544	0.987	0.661 ††	0.006 †	0.062	2.17	0.96 †	0.291	0.473	0.886	0.0297	0.522
50027	DN-23	0.627	1.13	0.803	0.01	0.0695	2.23	1.01	0.312	0.484	0.984	0.0308	0.54
50029	AD-23	0.625	1.01	0.74	0.002 †	0.0717	1.92 †	0.997	0.297	0.497	1.03	0.035 ††	0.588 †
50032	DE-11	0.593	1.03	0.738	0.01	0.06	2.2	1.06 †	0.347 †	0.535	0.963	0.03	0.56
52283	GJ-23	0.453 †	0.993	0.739	0.009	0.053	2.11 †	1.04	0.303	0.511	0.973	0.031	0.539
52387	GE-14	0.61	1.07	0.732	0.0549 †	0.059	1.76 †	0.814 ††	0.239 ††	0.49	0.527 ††	0.03	0.52
52427	ZZ-23	0.56	0.96	0.65 ††	0.008								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Carbon (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	CA-37	50.2	44.9	42.5	43.5	44	40	45.1	41.7	40	49.9	44.5	41.3
8888	CA-37					39.7 ††	35.3 †	40.3 ††	36.7 ††				
10156	CA-37	50.3	45.2	43.7	43.7	47.7 ††	43.1 †	48.8 ††	44.1 ††	40.2	50.2	44.3	41.7
10173	CA-37	50.1	44.8	42.9	43.5	41.7 †	38.2 †	43.5 †	39.2 ††	38.6 ††	48.4 ††	41.8 †	39.3 †
10181	CA-37	50.4	45.5	43.8	43.5	44.3	40.4	46.2	41.9	40.5	50.2	44.4	41.7
11079	CA-37	50.5	45.3	43.4	43.2								
20204	CA-37	49.7	43.9	42.9	42.2	43.1	39.7	44.8	41 †	39.8	49.5	43.1	40.7
21100	CA-37	50.2	44.7	43.7	42.2	43.8	39.9	44.8	41.5	39.9	49.8	43.8	41.9
21138	CA-37	50.1	45.1	43.2	43.2	41.7 †	40.3	45.2	41.9	39.8	50.1	43.4	42.8
21229	CA-37	49.5 †	44.3	43.2	42.9					40.1	50	43.9	41.2
21230	CA-37	49.9	44.6	43.2	43.7	41.6 †	38.4 †	43.3 †	39.8 ††	38.6 ††	48.1 ††	41.4 ††	38.9 ††
50004	CA-37	50.4	44.6	42.8	43.3	44.6	41.1	44.8	42	39.1	50.2	43.9	41.5
50005	CA-37	50.3	43.8	42.9	42.9	41.3 †	38.1 †	45	39.5 ††	40.1	49.8	43.1	40.6
50008	CA-37	50.2	45.2	43.3	43.8	44.5	40.5	46	42.1	40.1	49.8	43.5	41.2
50011	CA-37	50.1	45.1	44.1	42.7	44.6	41.6 †	45.2	43.5 †	40.8	50.1	43.9	41.4
50012	CA-37	51.2 †	45.1	44.1	43.2	44	40	46	42	42.7 ††	52.9 ††	45.7 ††	42.9
50014	CA-37	50.7	45.7	44.1	44.4	44.3	40.3	45.5	41.9	40	50	43.6	41.2
50017	CA-37	50	44.8	43.8	43.5	44.1	40.2	45.7	42	40.6	49.9	44.4	41.8
50020	CA-37	54.8 †	48.5 ††	47.6 ††	45.5 †	22.2 ††	27.9 †	35.3 ††	31.1 ††	17.7 ††	14.3 ††	12.7 ††	13.8 ††
50021	CA-37	48.9 †	43.4	42.6	41.4 †	40.7 ††	39.6	41.7 ††	41.2	38.5 ††	48.3 ††	41.8 †	39.1 ††
50024	CA-37	37.8 †	50.1 ††	43.7	44.7	44.4	40.5	45.7	42.2	40.8	50.5	43.9	41.9
50029	CA-37	48.5 †	42.9 ††	41.8	41 †	42.1	38.6 †	40.2 ††	40 ††	39	48.9 †	42 †	39.5 †
50032	CA-37	50.1	43.9	43.2	42.2					40.4	50	43.6	40.3
52283	CA-37	51 †	46.4 †	45 ††	44.9 †					40.3	49.3	43.7	41.3
52427	ZZ-26	49 †	44	42	42								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Chloride (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	BA-32	2440	9270	3190	306	785	6910	1520	5160	13800	625	1220	4230
8888	BB-18	2440	8150 †	3200	260	820	6040 †	1500	4650	13000	887 †	1120	4060
10173	CA-27	24700 †	92200 ††	32200 ††	3700 †	1200	7200	1600	5300	13100	600	1100	4000
20204	BB-27	2470	10600 †	3080	390 †	2220 ††	9790 †	1630	9750 ††	13400	511	1020	3480 ††
21043	BB-31	2190	8280 †	2840	194 †	969	6920	1520	5010	12800	653	1150	4020
21100	BB-31	3210	9210	3760 †	319	1170	7330	2210 ††	4980	10700 ††	1520 ††	912	4650 †
21138	BA-32	2500	9400	3200	400 †					13600	580	1200	4150
21193	BB-38	2170	9210	3290	305					15000 †	1250 ††	1170	4530
21196	BB-31	0.296 †	0.935 ††	0.365 ††	0.052 †					15700 ††	9000 ††	1390	5570 ††
21229	BB-31	2280	8740	3070	329	980	6960	1560	5050	13200	596	1070	4120
21230	BB-28	2330	9440	3060	131 †	858	6600	1440	4440	9240 ††	425 †	825 ††	2770 ††
21232	BB-31	0.2 †	0.7 ††	0.2 ††	0.05 †	500	4000 †	1000 ††	4000 ††	11500 †	1000 ††	1000	3000 ††
50005	BB-32	2500	9400	3250	310	1480	6950	1500	5000	13700	595	1210	4220
50011	BB-31	2350	9120	3040	300	1250	7130	1600	5140	13300	599	1130	4290
50012	BB-31	2550	9150	3250	230 †	1000	7600	1500	5400	12700	645	1070	4290
50014	BB-31	2700	9400	3400	400 †	900	7300	1600	5300	13600	700	1200	4100
50017	BB-31	2900	12700 ††	3500	309	718	7260	1460	4710	13900	580	1010	4210
50020	BA-31	3510 †	8840	3960 ††	1800 †	2150 ††	7210	2560 ††	5260	10800 ††	1970 ††	1730 ††	3950
50027	BB-32	2200	9500	3100	220 †	932	7250	1420	5080	14700	550	1370	4200
50029	BB-31	3260 †	8760	4000 ††	328	1190	6630	2000 ††	4850	10900 ††	1590 ††	1050	4650 †
50032	BB-27	3030	9850	3850 †	325	1200	7500	2200 ††	5500	14000	770	1490 ††	4800 †
52427	BB-31	3400 †	10000	4100 ††	310								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Cobalt ($\mu\text{g/kg}$)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-24	26.8	421	43.3	33.9	181	1530	181	130	3140	74.3	6.08	48.7
8888	DE-24	33	345	44	36	186	1360	128	119	3300	81.6	20.6	73.5
10156	GI-23					184	1880	114	133	1860	††	65.7	12.1
10173	DN-23	37.5	327	47.1	27	158 ††	1390	99	116	2840	71.4	7.4	49
20204	GJ-23	34.7	179 ††	51	36.4	109 ††	1010 †	131	142				
21100	DE-24	47.7	379	68.7	42.4	211 ††	1740	206 ††	162	3080	88.4	13.4	64
21138	DE-24	29	364	39	33	180	1700	110	120	3800 ††	70		50
21196	DE-23		346	76	157 †					3520			
21230	GG-24	61.3	490 ††	60	47.3	221 ††	1750	150	150	3670	117 ††	41.7 ††	99.5
50004	DE-24	37.6	501 ††	59.1	46.4	194	1670	129	145	3020	95.4	7.21	65.9
50005	GJ-23	30.9	362	49	36.1	122 ††	1170	130	82.9 ††	2890	79.5	10.6	52.9
50011	DE-24	37	371	47	43	180	1440	115	116	3180	79.8	8.9	57.1
50012	DN-24	24	250 ††	100 ††	100 †	62 ††	1500	10 ††	140	2800	100	100 ††	100
50014	DE-24	27	375	42	34	192	1550	116	133	6460 ††	74	6.3	53
50017	DE-23					570 ††	1660	67.8	415 ††	2320 ††	582 ††	25	666 ††
50020	GI-23	3	166 ††	3 ††	3 †	162 ††	1190	166	149	2480 ††	119 ††	27	86
50024	GJ-23	82 †	352	72	87 †	175	1380	74	122	3250	63	5	51
50027	DN-23	54	363	21	20	209 ††	1460	109	124	3270	107	20	47
50029	AD-23	31	317	45.5	36.7	194	1230	110	105	1440 ††	74.7	20.2	62.8
52427	ZZ-24	28	360	40	30								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Copper (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	7.61	11.8	11.8	2.82	9.28	146	2.67	6.8	9.55	6.96	6.29	3.32
8888	DE-23	6.83	10.6	10	2.29	7.17	108	2.2	4.91	10	7.06	6.34	3.39
10156	GI-23	6.15	10.2	10.3	1.37 †	7.19	106	3.26	5.96	7.22	5.54 †	6.72	2.75
10173	DN-23	6.47	10.4	9.88	2.06	7.92	121	2.13	5.5	8.64	6.26	5.75	2.74
11035	GG-23	6.1	7.4 ††	7.8 ††		5 ††	140	2.9	1 ††	7.8	4.4 ††	3.3 ††	3
11079	DE-23	8.21	13.3 ††	12.9	2.73					10.7	7.99 ††	6.75	3.54
20204	GJ-23	7.85	9.9	11.5	2.87	7.6	107	2.55	6.95 †	9.94	6.91	5.74	3.36
21043	GJ-23	7.07	10.7	10.5	2.49	7.94	136	2.4	5.86	9.59	7.54	6.09	3.21
21100	DE-24	6.99	11.3	11.4	2.4	7.95	131	3.29	5.81	9.23	6.28	5.57	2.81
21138	DE-23	7.87	11.9	11.6	2.39	8.8	150	2.4	6.3	9.2	6.8	6	3.2
21190	AD-13	8.11	10.7	9.26	1.57 †	5.75 ††	131	0.55 ††	1.9 ††	4.95 ††	6.7	5.9	5.85 ††
21193	GJ-11	8.65	12.9 ††	12.4	1.06 †							5.43	3.33
21196	DE-23	6.84	11.1	10.4	2.22					10.4	3.82 ††	6.14	3.26
21229	GI-23	7.62	11.7	11.4	2.48	9.09	125	2.46	4.89	9.07	6.62	5.87	3.04
21230	GG-23	8.09	12.7	12.1	2.91	8.33	145	2.76	6.1	8.43	6.29	5.03 †	2.68
21232	DE-23	7.66	11.7	13.1	3.13	8.74	140	2.99	6.41	9.6	7.68	6.5	3.46
21234	GH-09									10.2	8.34 ††	6.76	4.75 ††
50004	DE-23	7.77	13.4 ††	12.3	2.26	8.65	157	2.71	7.01 †	8.61	6.31	5.92	2.92
50005	GJ-23	7.35	11.2	11	2.59	6.49	92.2 †	2.64	4.93	9.1	6.68	5.82	3.13
50008	GJ-23	7.82	11.7	11	3.1	7.43	118	2.62	5.72	8.89	6.2	5.71	3.04
50011	DE-23	7.93	12	11.7	2.43	9.1	125	2.75	6.36	9.7	6.81	6.08	3.1
50012	DN-23	7.1	11	11	2.2	7.9	130	2.4	5.6	9.1	6.6	5.7	2.9
50014	DE-24	7.52	11.4	11.1	2.46	8.4	142	2.83	5.8	19.5 ††	6.29	6.06	3.07
50017	DE-23	7.2	6.7 ††	10.3	2.1	11.9 ††	128	2.91	5.56	14.2 ††	5.94	7.57 ††	2.53
50020	GI-23	7.11	11.4	11.1	2.16	6.95	115	2.07	4.77 †	10.1	6.9	6	3.2
50021	GJ-23	7.24	10.9	11.5	2.69	7.48	125	2.82	5.66	11.3	6.45	6.6	4.13 ††
50024	GJ-23	6.5	10.2	9.78	2.63	7.99	123	2.2	5.62	7.92	5.96	5.61	2.7
50025	GJ-23	7.2	10.7	10.3	2.78	8.38	117	2.55	5.85	9.1	6.93	6.59	3.96 ††
50027	DN-23	7.2	11.4	11.1	2.3	8.05	131	2.37	5.83	9.3	6.6	5.5	2.8
50029	AD-23	7.55	10.5	7.85 ††	0.0128 †	8.06	123	2.19	1.29 ††	3.32 ††	6.97	2.11 ††	3.01
50032	DE-11	7.5	11.6	11.2	2.07	7.95	132	3.3	6.03	10.4	6.8	5.8	3.2
52283	GJ-23	6.57	10.9	10.6	1.26 †	9.01	151	2.93	6.48	9.37	6.62	5.81	2.94
52387	GE-09	7.88	11.8	11.9	2.66	7.8	147	3	6.68	11.5 †	7.81 †	6.7	3.41
52427	ZZ-23	7.2	11	10	2.2								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Iron (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	52.5	451	141	25.1	72.2	268	3640 ††	118	4020	121	46.9	71.2
8888	DE-23	49.9	398	130	25.2	75.5	258	299	121	3580	108	52.4	84.1
10156	GI-23	59.3	526 ††	176 ††	35.1 †	70.4	274	274	121	2600 ††	105	40.4	63.9 ††
10173	DN-23	65.1	415	150	21.6 †	63.5	247	233	105 †	3420	128	41.2	85.3
11035	GG-23	66	410	150	11 †	83 †	270	260	120	3300	100	32 †	77
11079	DE-23	60	504 †	164	26.7					3830	143	54.9	105 ††
20204	GJ-23	51.9	414	137	25.3	56 ††	178 †	293	96.8 ††	3520	120	50.1	85
21043	GJ-23	52.6	422	140	24.8	69.1	287	253	114	3220	109	37.5	67.4
21100	DE-24	56.2	444	150	27.8 †	71.3	275	2490 ††	131 †	3530	112	42.5	74.1
21138	DE-23	54.3	429	139	24.8	71	300	260	120	3600	110	45	77
21190	AD-13	47	276 ††	119	9.25 †	84.1 ††	235	176 ††	95.6 ††	2120 ††	98.7	22.4 ††	77.2
21193	GJ-11	65.7	333 †	142	29.4 †							41.3	89.6
21196	DE-23	64.8	433	132	28.1 †					3910	102	54	90.4
21229	GI-23	52	422	138	24.7	73.7	231	297	115	3500	117	48.3	84.8
21230	GG-23	53.4	464	135	25.4	1.94 ††	114 †	167 ††	94.6 ††	3150	95.7	39.7	68.4
21232	DE-23	61.3	500 †	153	26.6	82.5 †	302	326	129 †	3460	138	50.2	83.7
21234	GH-09									3420	142	59.6 †	100
50004	DE-23	53.7	487	148	24.2	80	289	276	137 ††	3540	134	49.4	78.1
50005	GJ-23	50.9	359	137	25	76.5	268	315	247 ††	3390	115	49.4	85.1
50008	GJ-23	48	420	131	23	68.6	220	298	112	3690	118	45.3	77.5
50011	DE-23	58.2	402	151	24.7	75.6	244	241	117	3790	119	50.2	88.5
50012	DN-23	52	430	140	23	76	270	320	120	3360	124	46	82
50014	DE-23	53.6	466	142	24.8	74.2	275	297	116	3740	119	45.3	84.5
50017	DE-23	209 †	420	136	24.4	69.8	254	290	102 †	4210 †	117	51.7	97.2
50020	GI-23	48.6	360	126	21.8 †	71.1	218	320	111	3790	106	45	79
50021	GJ-23	51.4	406	150	31.3 †	74.5	245		128 †	4450 ††	96	39	79
50024	GJ-23	49.3	402	127	24.8	71	260	270	114	3690	108	44	84.3
50025	GJ-23	47.4	400	124	23.4	66.7	239	199 †	107		115	46.8	85.7
50027	DN-23	61.8	447	147	24.4	77.5	257	299	122	3530	125	47	81
50029	AD-23	43	277 ††	102 ††	17.7 †	71.2	144 †	272	77.3 ††	686 ††	79.9 ††	53.1	53.7 ††
50032	DE-11	54.8	400	138	24.6	70	214	322	118	3820	123	45.8	91
52283	GJ-23	41.2	382	131	29.1 †	62.4	226	285	117	3650	120	46.4	88.8
52387	GE-09	57.1	103 ††	142	21.4 †	67.6	246	214	114	297 ††	118	39.3	79.4
52427	ZZ-23	50	350 †	120	19 †								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Lead (µg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
10156	GI-23					8.19	15 †	223	12.9	261	210	52.5	96.7
10173	DN-23	57.6	412	93.6	15.4	5	44.9	157	32.8	311	222	3.3	64.8
11035	GG-23					12000 ††	17000 †	3000 ††	5000 ††				
20204	GJ-23	66.3	318	109	15.8	169 ††	268 †	362 ††	103 ††	287	326	100	77
21100	DE-24	67	464	121	24.5	38 ††	70	243	81	410	320	86.3	160
21138	DE-24	60	428	88						300	190		
21230	GG-24	77	511	112	31.3	17.7	155 †	202	39.8	319	242	57	102
50004	DE-24	89.5	556	141	29.5	11.8	55.2	217	54.1	277	218	4.74	67.9
50005	GJ-23	63	286 ††	119	16.1	183 ††	150 †	159	15.4	323	251	20.2	82.7
50011	DE-24	58	404	110	18	17	59	207	58	337	251	15.9	71.5
50012	DN-24	480 †	880 ††	1000 ††	83 †	840 ††	200 †	260	440 ††	409	500 ††	500 ††	159
50014	DE-24	61.5	420	102	16.1	18	68.1	159	48.7	703 ††	225	5	76
50020	GI-23	1 †	1 ††	1.48 ††	188 †	176 ††	438 †	175	28.6	346	193	26.4	0.024 ††
50024	GJ-23	184 †	431	238 ††	152 †	262 ††	14 †	43 ††	10	166	176	114	12 ††
52427	ZZ-24	71	380	100	13								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Magnesium (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	0.083	0.316	0.231	0.129	0.103	1.26	0.309	0.156	0.38	0.127	0.113	0.164
8888	DE-23	0.075	0.285	0.211	0.116	0.086 ††	1.08	0.278 ††	0.133	0.369	0.124	0.105	0.158
10156	GI-23	0.0769	0.293	0.226	0.119	0.101	1.29	0.328	0.169	0.347	0.132	0.109	0.16
10173	DN-23	0.086	0.305	0.226	0.134	0.106	1.18	0.32	0.159	0.333	0.122	0.103	0.141 †
10181	GF-23	0.0831	0.308	0.229	0.125	0.105	1.25	0.318	0.153	0.376	0.123	0.101	0.152
11035	GG-23	0.08	0.3	0.23	0.12	0.11	1.3	0.33	0.17	0.36	0.13	0.1	0.16
11079	DE-23	0.09	0.33	0.25 †	0.13					0.411 ††	0.15 ††	0.128 ††	0.188 ††
20204	GJ-23	0.08	0.292	0.229	0.122	0.102	1.16	0.31	0.164	0.348	0.13	0.11	0.16
21043	GJ-23	0.0745	0.274	0.208	0.123	0.096	1.11	0.299	0.148	0.357	0.122	0.108	0.153
21100	DE-24	0.0772	0.3	0.225	0.117	0.102	1.23	0.324	0.159	0.356	0.126	0.105	0.16
21138	DE-23	0.0829	0.304	0.225	0.123	0.1	1.3	0.31	0.16	0.34	0.12	0.11	0.16
21190	AD-13	0.098 †	0.315	0.241	0.133	0.127 ††	1.23	0.337	0.166	0.336	0.128	0.105	0.163
21193	GJ-11	0.11 †	0.32	0.22	0.14							0.099	0.15
21196	DE-23	0.0763	0.291	0.21	0.116					0.38	0.229 ††	0.113	0.179 ††
21229	GI-23	0.0811	0.301	0.225	0.123	0.103	1.28	0.31	0.156	0.347	0.125	0.108	0.153
21230	GG-23	0.0862	0.317	0.231	0.129	0.099	1.09	0.319	0.142	0.282 ††	0.102 ††	0.0832 ††	0.125 ††
21232	DE-23	0.092 †	0.325	0.239	0.126	0.11	1.3	0.319	0.164	0.371	0.126	0.106	0.159
21234	GH-09									0.3 ††	0.1 ††	0.08 ††	0.13 ††
50004	DE-23	0.088	0.34	0.246 †	0.128	0.111	1.34	0.339 †	0.169	0.339	0.129	0.11	0.159
50005	GJ-23	0.0811	0.27	0.222	0.13	0.0955	1.28	0.309	0.124 ††	0.341	0.123	0.11	0.158
50006	GE-11									0.929 ††	0.326 ††	0.284 ††	0.455 ††
50008	GJ-23	0.082	0.311	0.228	0.128	0.088 ††	1.22	0.3	0.139	0.389 †	0.136 †	0.119	0.172
50011	DE-23	0.076	0.311	0.236	0.129	0.107	1.24	0.316	0.155	0.365	0.129	0.111	0.16
50012	DN-23	0.079	0.29	0.21	0.11	0.1	1.2	0.29	0.16	0.342	0.122	0.102	0.146
50014	DE-23	0.0805	0.304	0.224	0.126	0.105	1.29	0.304	0.155	0.362	0.122	0.106	0.157
50017	DE-23	0.08	0.28	0.332 ††	0.121	0.091 †	1.07	0.264 ††	0.128 ††	0.34	0.106 ††	0.099	0.143 †
50020	GI-23	0.0802	0.3	0.225	0.118	0.0964	1.15	0.303	0.148	0.332	0.112 †	0.093	0.142 †
50021	GJ-23	0.081	0.294	0.215	0.123	0.095	0.972 †	0.305	0.146	0.313	0.111 ††	0.1	0.138 ††
50024	GJ-23	0.075	0.269	0.202 †	0.121	0.101	1.14	0.315	0.151	0.349	0.119	0.102	0.152
50025	GJ-23	0.076	0.277	0.203 †	0.114	0.0979	1.16	0.282 †	0.148	0.334	0.115	0.1	0.151
50027	DN-23	0.081	0.297	0.227	0.116	0.103	1.23	0.305	0.156	0.36	0.125	0.108	0.159
50029	AD-23	0.08	0.278	0.21	0.13	0.102	1.13	0.297	0.137	0.273 ††	0.127	0.117	0.167
50032	DE-11	0.085	0.283	0.216	0.118	0.107	1.21	0.317	0.167	0.36	0.13	0.11	0.16
52283	GJ-23	0.081	0.291	0.224	0.137	0.099	0.785 †	0.305	0.17	0.342	0.122	0.105	0.156
52387	GE-09	0.0697 †	0.269	0.206	0.103	0.15 ††	2.03 †	0.4 ††	0.22 ††	0.295 ††	0.125	0.1	0.17
52427	ZZ-23	0.077	0.27	0.19 ††	0.11								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Manganese (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	12.5	45.5	80.3	20.8	12.6	146	64.7 ††	204	162	140	16.4	32.5
8888	DE-23	13.1	44.8	82.3	22.7	12.3	129	43.6	192	148	135	16.8	31.3
10156	GI-23	14.8 †	53.9 ††	95.8 ††	24.2 †	11.7	149	49.4	199	110 ††	107 ††	11.5 ††	23.3 ††
10173	DN-23	12.3	44.7	80.8	21.5	12	126	44.7	181	147	132	14.7 †	29.4 †
11035	GG-23	12.9	44.1	80.2	20.2	13	220 †	53	230 ††	170	160 ††	16	35 †
11079	DE-23	13.9	49.6	89.5 ††	22.7					175	169 ††	18.1 ††	37.5 ††
20204	GJ-23	11.9	39.1	80.9	20.9	9.62 ††	92.4 †	47.7	212 †	149	143	15.1	31.2
21043	GJ-23	14.2	47.2	77.9	23.1 †	11.4	149	58.2 ††	183	160	138	12.3 ††	27.4 ††
21100	DE-24	12.4	43.7	78.4	20.2	12.3	144	60.5 ††	200	160	147	16.4	33
21138	DE-23	13.2	45.3	81.5	20.5	12	150	49	200	150	140	15	32
21190	AD-13	10.5	43.7	53.7 ††	20.3	11.5	142	49.8	157 ††	132	136	13.9 ††	27.5 ††
21193	GJ-11	12.3	44.5	80.8	16.2 †							15.7	32.1
21196	DE-23	12.2	43.6	75.8	20					169	28.3 ††	16.5	35.4 ††
21229	GI-23	12.8	43.3	79	20.9	12.7	134	47.4	196	145	139	16.1	31.2
21230	GG-23	12.8	46.4	80.2	21.4	12.2	126	48.1	189	120 ††	113 ††	11 ††	23.3 ††
21232	DE-23	14.3	47	83.5	21	12.6	160	51.1	224 ††	165	154 †	16.8	34.1
21234	GH-09									198 ††	187 ††	21.4 ††	44.9 ††
50004	DE-23	11.4	41	71.8 †	18.8	12.9	144	50.5	214 †	143	144	16.5	31.6
50005	GJ-23	12.3	39.7	81.1	21.4	11.8	137	48.8	196	147	147	16.1	31.9
50008	GJ-23	12	42.8	76.9	20.3	11	127	43.1	190	153	142	15.4	30.6
50011	DE-23	16.2 †	47.7	87.2 †	22.2	12.9	142	49.3	209	159	149	16.3	33.1
50012	DN-23	13	45	80	20	12	140	50	200	158	143	16	32
50014	DE-23	13.4	46.6	81.7	22.1	12.9	146	44.1	195	159	141	15.7	32
50017	DE-23	12	46	77.7	20.1	11.8	134	43.1	174 †	169	132	16.3	32
50020	GI-23	10.8	37.9	69.7 ††	17.6 †	10.3 ††	108 †	41.5	159 ††	160	145	16	33
50021	GJ-23	11.7	41.9	72.7 †	19.6	12.3	132	53.4	186	146	124 †	14 ††	29 †
50024	GJ-23	11.6	42	74.2	20.8	12.5	143	48.6	198	157	138	15.4	31.5
50025	GJ-13	11.3	40.6	71.3 †	18.9	12.1	138	44.8	192	152	140	16.1	32.4
50027	DN-23	12.8	43.3	81.2	20.4	12.7	146	48.4	199	155	142	16.1	31.7
50029	AD-23	13.2	40.7	75	24.6 †	13.6	125	44.8	158 ††	108 ††	151	18.9 ††	35.1 †
50032	DE-11	13.7	44.2	73.5	18.7	11.3	142	46.7	185	157	147	16	32.6
52283	GJ-23	9.91 †	39.3	74.6	22.8	11	129	47.9	201	154	140	15.6	32.3
52387	GE-09	13.8	45.1	78.2	20	13.1	138	44.2	196	174	149	16	33.6
52427	ZZ-23	12	41	69 ††	19								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Molybdenum ($\mu\text{g}/\text{kg}$)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-24	48.3	319	478	472	2530	6260	89.3	9520	783	140	1660	589
8888	DE-24	57	290	448	438	2350	5690	78	8630	836	153	1640	608
10173	DN-23	57	330	532	468	2400	6090	61.1	9120	769	137	1520	547
20204	GJ-23	66	436 ††	456	508	4420 ††	9150 †	859 ††	15300 ††	10100 ††	52700 ††	352000 ††	163000 ††
21100	DE-24	76.8	316	478	491	2370	5680	129 ††	9010	975	154	1770	593
21138	DE-24		430 ††	640 ††	720 †	3000 ††	6000		9000			2000 ††	
21196	DE-23	193 †	359	568 ††	515					846	663 ††	1870	633
21230	GG-24	68	363	495	516	2420	7690 †	74.8	10000	888	150	1590	671
50004	DE-24	88	318	505	471	2610	6770	79.7	10700	1360 ††	117	1980 ††	765 ††
50005	GJ-23	60.6	278	465	501	2040	4370 †	65.9	7030 ††	695	153	1700	590
50011	DE-24	69	298	463	495	2210	5550	66	8000	794	139	1620	560
50012	DN-24	92	1000 ††	770 ††	440	2400	5400	370 ††	8800	693	137	1510	948 ††
50014	DE-24	85	345	487	483	2650	6040	63.1	9640	1580 ††	131	1690	597
50017	DE-23					2860 ††	5800	195 ††	8700	970	316 ††	2130 ††	713 ††
50020	GI-23	77.7	176 ††	375 ††	351 †	2140	4160 †	243 ††	7410	417 ††	58 ††	1430	451 ††
50024	GJ-23	77	235	411 ††	464	2390	5470	48	8410	547	111	1500	606
50027	DN-23	5 †	276	471	505	2540	5700	82	8980	595	200 ††	1690	597
50029	AD-23	51.8	253	282 ††	317 †	2500	5380	27.3 ††	6390 ††	550	187 ††	1670	597
52427	ZZ-24	47	290	430	440								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Nitrate Nitrogen (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	BA-31	9	12.6	38.2	3.27	22.3 ††	3590	4.95	12.1	453 †	6.67	12.8	933 ††
8888	BB-18	0.004 †	0.004 †	0.006 ††	0.001	30 ††	5930 †	60 ††	1760 ††	408			788
10173	DN-23	12	17	35	34 †					338	25 ††	31 †	785
20204	BB-30	15.3 †	8.3	36.9	1.3	4	2430 †	4.72	1040 ††	363	1620 ††	1980 ††	4650 ††
21100	BB-31	8.29	9.69	28.1	7.02	2.88	3410	4.86	4.7	273 †	5.54	1.24	519 ††
21138	ZZ-31									334			555 ††
21196	BB-27									318	7.5	25.3 †	583
21229	BB-31	8.09	16.5	47.3 †	5.71	19.3 ††	3360	2.5	11.9	361	7.16	2.82	742
21232	BB-31	7.45	11.8	34.5	7.85	5.35	3070	7.55	5.65	348	12.2 †	2.6	805
50005	BA-30	11.1	16.5	38.3	1.22	3.27	2140 †	5.5	1.22	329	6.8	5.56	695
50011	BB-31	5.11	11.2	37.2	6.5	6	3400	12 †	5	353	7	4	707
50012	BB-31	3.73	8.78	30.1	1.72	1.4	3300	7.4	2.9	346	6	1.5	740
50017	BB-31	20.9 †	22.2 †	67 ††	22.5 †					396	10.9	8.48	787
50020	BA-31	1.77	2.68	2.99 ††	1.31	37.2 ††	3020	32.4 ††	29.5 ††	557 ††	98 ††	89 ††	855
50021	ZZ-31	7.4	13.7	33.3	3.92	3	3330	6.72	2.85	364	5.21	1.53	736
50025	BB-31	50.6 †	37.1 ††	32.5	55 †	1	1 †	1	1	500 ††	0.157 †	103 ††	700
50027	BB-31	6	12	46 †	3	3	3590	6	6	446 †	4	25 †	753
50029	BB-31	25.5 †	31.7 ††	52.3 ††	29.9 †	2.17	2980	8.6	1.45	342	7.73	1.21	704
50032	BB-27	6.4	11.8	35	7.05	14 ††	3300	18 ††	13.5	419	14 †	10	618
52427	BB-31	5.7	9.7	31	1								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Nitrogen (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	CA-27	1.9	2.84	3.03	1.5	4.05	3.79	0.96	2.65	1.78	1.86	1.91	2.76
8888	CA-37	1.86	2.6 †	2.9	1.46	3.73	3.51 †	0.912	2.45	1.79	1.85	1.87	2.65
10156	CA-37	1.84	2.81	3.06	1.43	4.31	4.01 †	1.04	2.75	1.78	1.84	1.9	2.76
10173	CA-37	1.82	2.81	3.04	1.46	3.78	3.6	1.05	2.46	1.75	1.85	1.82	2.59
10181	CA-37	1.91	2.9	3.17	1.51	4.08	3.82	1.05	2.65	1.84	1.88	1.95 †	2.8
11079	CA-37	1.9	2.85	3	1.55								
20204	CA-37	1.81	2.7	2.99	1.4	3.79	3.59	0.992	2.45	1.78	1.81	1.82	2.64
21043	CA-37	1.89	2.83	3.1	1.44	4.03	3.81	0.989	2.63	1.81	1.84	1.9	2.76
21100	CA-37	1.86	2.76	3.02	1.4	3.92	3.75	0.99	2.6	1.8	1.8	1.88	2.78
21138	CA-37	1.78	2.76	2.96	1.31	4.03	3.7	0.97	2.52	1.69 †	1.73 †	1.8 †	2.53
21190	GE-38	1.41 †	2.14 ††	2.48 ††	1.29	3.64	3.22 †	0.91	2.24 ††	1.69 †	1.85	1.69 ††	2.62
21193	GE-32	2.18 †	2.82	3.12	1.71 †					1.58 ††	1.64 ††	1.66 ††	2.48
21196	CA-37	1.71 †	2.57 ††	2.83 ††	1.3					1.83	0.855 ††	1.94 †	2.9
21229	GE-31	1.76	2.68	2.95	1.37	3.91	3.75	0.98	2.58	1.75	1.82	1.85	2.6
21230	CA-37	1.86	2.81	3.05	1.46	3.95	3.85	1.15	2.7	1.71	1.81	1.83	2.65
21232	CA-37	1.8	2.85	3.08	1.38	3.87	3.59	1.06	2.63	1.77	1.73 †	1.87	2.7
21234	GE-32									1.61 ††	1.52 ††	1.52 ††	2.05 ††
50004	CA-37	1.98 †	2.88	3.16	1.54	3.95	3.76	1.22 ††	2.65	1.82	1.81	1.85	2.69
50005	CA-37	1.85	2.71	2.99	1.39	3.81	3.63	0.931	2.52	1.75	1.79	1.83	2.63
50008	CA-27	1.86	2.8	3	1.46	4.06	3.8	1.03	2.62	1.76	1.82	1.88	2.72
50011	CA-37	1.86	2.74	2.97	1.38	3.91	3.78	1.04	2.71	1.79	1.82	1.87	2.72
50012	CA-37	1.86	2.78	3.07	1.42	4.1	3.9	1	2.7	1.95 ††	2.02 ††	2.03 ††	2.93
50014	CA-37	1.87	2.86	3.09	1.46	4.04	3.8	0.972	2.65	1.76	1.82	1.88	2.72
50017	CA-37	1.85	2.82	3.09	1.48	4.16	4	0.956	2.8	1.88 †	1.97 ††	2.01 ††	2.87
50020	CA-37	0.5 †	0.5 ††	22.1 ††	0.5 †	3.74	3.58	1.03	2.52	1.75	1.78	1.78 †	2.57
50021	CA-37	1.8	2.74	3.05	1.37	3.89	3.83	0.937	2.67	1.79	1.82	1.85	2.63
50024	CA-37	3.53 †	1.87 ††	3.14	3.57 †	4.03	3.77	1.15	2.64	1.78	1.84	1.89	2.79
50027	CA-37	1.89	2.81	3.17	1.43	3.62	3.61	1.07	2.57	1.89 ††	1.87	1.87	2.67
50029	CA-37	1.86	2.78	3.05	1.41	3.9	3.69	0.919	2.54	1.82	1.84	1.86	2.71
50032	CA-37	1.86	2.75	3.03	1.32					1.8	1.82	1.86	2.61
52283	CA-37	2 †	3 ††	3.22 ††	1.53					1.79	1.77	1.82	2.7
52387	GE-30					3.47 ††	3.19 †	0.762 ††	2.26 ††	1.42 ††	1.35 ††	1.89	2.81
52427	GF-31	1.8	2.6 †	3	1.4								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Phosphorus (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	0.163	0.135	0.263	0.298	0.291	0.31	0.058	0.285	0.345	0.159	0.292	0.377
8888	DE-23	0.166	0.135	0.244	0.27	0.292	0.314	0.057	0.286	0.366 †	0.171	0.295	0.387
10156	GI-23	0.171	0.147	0.295 ††	0.318	0.271	0.332	0.0624	0.297	0.29 ††	0.153	0.256	0.332
10173	DN-23	0.178	0.141	0.278	0.296	0.283	0.325	0.0647	0.28	0.321	0.166	0.269	0.359
10181	GF-31	0.16	0.126	0.25	0.283	0.304	0.321	0.0619	0.282	0.339	0.153	0.276	0.363
11035	GG-24	0.16	0.13	0.25	0.21 †	0.28	0.35	0.05 ††	0.34 ††				
11079	DE-23	0.16	0.13	0.26	0.29					0.345	0.169	0.295	0.38
20204	GJ-23	0.164	0.144	0.261	0.28	0.266	0.308	0.0603	0.287	0.329	0.169	0.283	0.361
21043	GJ-23	0.154	0.125	0.245	0.289	0.274	0.297	0.061	0.276	0.362	0.164	0.289	0.366
21100	DE-24	0.157	0.132	0.266	0.28	0.289	0.324	0.072 ††	0.283	0.347	0.159	0.27	0.361
21138	DE-23					0.28	0.3	0.06	0.27	0.33	0.15	0.27	0.35
21190	GE-30	0.152	0.126	0.24	0.384 †	0.277	0.288	0.059	0.267	0.336	0.174	0.301	0.337
21193	GJ-30	0.19 †	0.14	0.28	0.37 †					0.33	0.16	0.28	0.35
21196	DE-23	0.15	0.128	0.242	0.279					0.376 †	0.193 ††	0.314	0.413 ††
21229	GI-23	0.163	0.132	0.259	0.279	0.272	0.308	0.0626	0.264	0.333	0.161	0.265	0.348
21230	GG-23	0.172	0.141	0.26	0.306	0.278	0.291	0.051 ††	0.277	0.335	0.173	0.275	0.352
21232	DE-23	0.179	0.138	0.272	0.285	0.326 ††	0.343	0.078 ††	0.312 ††	0.358	0.174	0.286	0.374
21234	GH-30									0.92 ††	0.38 ††	0.68 ††	0.75 ††
50004	DE-23	0.176	0.141	0.283	0.271	0.295	0.351	0.062	0.314 ††	0.346	0.173	0.288	0.373
50005	GJ-23	0.161	0.139	0.26	0.291	0.288	0.312	0.0615	0.275	0.334	0.155	0.269	0.365
50008	GJ-23	0.168	0.14	0.27	0.305	0.269	0.3	0.056 †	0.276	0.36	0.166	0.293	0.375
50011	DE-23	0.176	0.14	0.272	0.315	0.3	0.31	0.063	0.29	0.35	0.16	0.28	0.38
50012	DN-23	0.16	0.13	0.26	0.29	0.29	0.32	0.068 †	0.28	0.349	0.163	0.278	0.359
50014	DE-23	0.168	0.137	0.266	0.31	0.307	0.331	0.057	0.289	0.349	0.161	0.291	0.367
50017	DE-23	0.16	0.117	0.32 ††	0.27	0.253	0.27	0.05 ††	0.231 ††	0.316	0.132 ††	0.251	0.316 ††
50020	GI-23	0.144	0.116	0.268	0.272	0.291	0.292	0.0607	0.27	0.292 ††	0.139 †	0.231 ††	0.342
50021	GJ-23	0.151	0.123	0.234	0.276	0.274	0.283	0.061	0.257	0.266 ††	0.134 ††	0.235 ††	0.293 ††
50024	GJ-23	0.133 †	0.12	0.236	0.269	0.267	0.321	0.062	0.272	0.332	0.151	0.252	0.338
50025	GJ-23	0.205 †	0.127	0.243	0.287	0.291	0.309	0.0525 ††	0.279	0.338		0.284	0.364
50027	DN-23	0.17	0.135	0.269	0.266	0.275	0.325	0.0618	0.277	0.32	0.157	0.256	0.35
50029	AD-23	0.162	0.12	0.258	0.312	0.272	0.27	0.0633	0.257	0.305 †	0.165	0.278	0.342
50032	DE-30	0.16	0.128	0.255	0.277	0.263	0.293	0.06	0.27	0.33	0.157	0.283	0.35
52283	GJ-23	0.143	0.123	0.248	0.299	0.221 ††	0.253 †	0.05 ††	0.23 ††	2.12 ††	1 ††	0.356 ††	2.13 ††
52387	GE-30	0.131 †	0.096 ††	0.198 ††	0.208 †	0.267	0.28	0.04 ††	0.264	0.33	0.17	0.26	0.33
52427	GF-31	0.17	0.13	0.26	0.3								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Potassium (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	1.63	0.416	2.37	0.222	0.968	5.37	0.559	2.49	2.34	1.04	0.377	2.29
8888	DE-23	1.6	0.404	2.27	0.197	0.849	5.04	0.53	2.21	2.24	1.05	0.372	2.3
10156	GI-23	1.57	0.411	2.6 †	0.221	0.893	4.94	0.57	2.35	2.04	0.999	0.368	2.1
10173	DN-23	1.61	0.377	2.28	0.203	0.834	4.9	0.544	2.22	2.05	0.977	0.343	1.98
10181	GF-23	1.69	0.442	2.44	0.231	0.97	5.27	0.582 †	2.45	2.29	1.02	0.346	2.18
11035	GG-23	1.69	0.44	2.4	0.24	0.85	5.3	0.51	2.5	1.9	0.96	0.36	1.9
11079	DE-23	1.1 †	0.4	1.79 ††	0.24					1.87	0.625 ††	0.297	1.94
20204	GJ-23	1.6	0.365	2.25	0.23	0.933	4.94	0.553	2.54	2.16	0.997	0.346	2.26
21043	GJ-23	1.55	0.405	2.19	0.192	0.796	4.6	0.501	2.13	2.3	1.07	0.379	2.15
21100	DE-24	1.56	0.396	2.3	0.203	0.886	4.77	0.531	2.28	2.23	0.975	0.35	2.31
21138	DE-23	1.57	0.395	2.23	0.204	0.86	4.6	0.49	2.1	1.9	0.92	0.33	2
21190	GE-09	1.43	0.4	2.23	0.22	0.843	4.63	0.481 †	2.16	2.23	1.01	0.334	2.06
21193	GJ-11	1.67	0.43	2.48	0.22							4.16 ††	1.98
21196	DE-23	1.47	0.426	2.15	0.213					2.38	1.78 ††	0.389	2.44 †
21229	GI-23	1.59	0.399	2.3	0.211	0.904	4.93	0.517	2.3	2.17	1.01	0.358	2.13
21230	GG-23	1.41	0.41	1.35 ††	0.216	0.84	4.68	0.522	2.37	1.76 ††	0.846 †	0.288 †	1.75 ††
21232	DE-23	1.64	0.466 †	2.3	0.234	0.981	5.2	0.541	2.44	2.26	1.07	0.364	2.23
21234	GH-20									2.18	1.15 †	0.44 ††	2.18
50004	DE-23	1.57	0.498 ††	2.53	0.189	0.956	5.96 †	0.604 ††	2.57	2.15	1.01	0.353	2.12
50005	GJ-23	1.53	0.501 ††	2.25	0.219	0.832	4.56	0.544	2.08	2.09	0.998	0.351	2.17
50006	GE-11									6.63 ††	3.8 ††	1.49 ††	6.78 ††
50008	GJ-23	1.7	0.437	2.46	0.238	0.789	4.54	0.518	2.26	2.25	0.998	0.357	2.15
50011	DE-23	1.7	0.393	2.4	0.224	0.87	4.9	0.52	2.33	2.23	1.05	0.36	2.26
50012	DN-23	1.5	0.79 ††	2.2	0.2	0.87	4.6	0.52	2.2	1.96	0.979	0.322	1.94
50014	DE-23	1.6	0.434	2.34	0.227	0.957	5.28	0.531	2.35	2.25	0.995	0.36	2.15
50017	DE-23	1.57	0.4	1.98	0.213	0.773	3.99 †	0.437 ††	1.76 ††	1.97	0.823 ††	0.328	1.88
50020	GI-23	1.91 †	0.373	2.69 ††	0.176	0.55 ††	4.86	0.344 ††	1.94	2.39	0.92	0.31	2.15
50021	GJ-23	1.34 †	0.454 †	1.86 ††	0.199	0.773	2.43 †	0.513	1.56 ††	2.22	1.14 †	0.455 ††	1.96
50024	GJ-23	1.36 †	0.357 †	2.08	0.191	0.83	4.87	0.536	2.16	2.07	0.933	0.317	2.06
50025	GJ-23	1.52	0.396	2.09	0.204	0.867	4.39	0.519	2.08	2.21	1.06	0.383	2.23
50027	DN-23	1.55	0.414	2.28	0.192	0.869	4.69	0.504	2.15	2.01	0.98	0.336	2.08
50029	AD-23	1.46	0.413	2.08	0.162 †	0.752	4.67	0.458 ††	2.07	1.96	0.983	0.302	2.22
50032	DE-11	1.61	0.404	2.31	0.203	0.897	5.1	0.54	2.34	2.3	1.05	0.37	2.17
52283	GJ-23	1.77	0.429	2.31	0.233	0.895	3.96 †	0.534	1.92	0.337 ††	0.161 ††	0.279 †	0.362 ††
52387	GE-09	1.86 †	0.45 †	2.18	0.197	1.01 ††	5.51	0.64 ††	2.71 ††	2.12	0.95	0.245 ††	2.13
52427	ZZ-23	1.4	0.36 †	1.9 ††	0.18								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Selenium ($\mu\text{g/kg}$)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-24	31	34.5	18.6	48.6	1340	638	31.9	206	74.7	24.8	806	49.2
8888	DE-24	74	147 ††	50 ††	10 †	1330	675	39	231	163	40.8	779	52.5
10156	GI-23					1580	1620 †	215 ††	2150 ††				
10173	DN-23	26.1	43.3	11.4	55.7	1360	721	64.4 ††	218	44.6	32.8	748	42.4
11035	GG-24		20			1400	860	10 ††	180			700	
20204	GJ-23	39.4	21.3	26.3	52.5	1490	1550 †	343 ††	1710 ††	450	176 ††	794	448 ††
21100	DE-24	76.1	390 ††	103 ††	270 †	937	1010	32	1160 ††	1020 ††	686 ††	1530 ††	558 ††
21138	DE-24	29	30		53	1200	550	20	190		20	760	50
21230	GG-24	41.3	42	24	64	1660	815	29.4	304	86.9	31.6	428 ††	32.1
50004	DE-24	59.5	81.7 ††	42.5	73.3	322 ††	310	11.7	75.3 ††	290	104 ††	826	95.2
50005	GJ-23	40.9	45.1	22.1	60.1	137 ††	67.6 †	39.8	69.4 ††	80.9	26.3	830	70
50011	DE-24	43	44	24	69	1350	570	33	209	72.5	21.9	819	67.8
50012	DN-24	410 †	710 ††	1000 ††	1000 †	420 ††	1 †	400 ††	1500 ††	1000 ††	1000 ††	1000 ††	1000 ††
50014	DE-24	45.1	47.6	25.4	60.3	1490	663	29.7	247	190	31	837	56
50020	GI-23	1060 †	50	50 ††	979 †	1510	1510 †	228 ††	813 ††	3260 ††	1480 ††	1780 ††	1340 ††
52427	ZZ-24	33	37	18	49								

Lab. Code #	Method Codes	Plant sample identification and values for NOT ASSESSABLE 2016: Silicon (%Si) NOT ASSESSABLE											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
10156	GI-23					0.0015	0.0344	0.0369	0.0507				
21100	DE-24	0.0215	0.033	0.021	0.0132	0.0118	0.035	0.0338	0.0292	0.0758	0.0585	0.0384	0.0265
50004	DE-23					0.005	0.047	0.075	0.113	0.064	0.045	0.015	0.005
50005	DE-23	0.0138	0.056	0.927	0.0149	0.0056	0.0376	0.0447	0.397 †	0.166	0.07	0.0189	0.0111
50008	ZZ-23	0.024	0.465 ††	2.78 ††	0.021	0.013	0.117 †	0.25 ††	3.85 ††	3.16 ††	0.137	0.03	0.017
50020	GI-23	0.0338	0.063	0.065	0.036	0.002	0.00583 †	0.00767	0.0107	0.01	0.007	0.004	0.002
50027	CA-36	0.15 †	1.97 ††	0.36	0.156 †								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Sodium (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	537	15000	423	6.93	10.7	89.1	638	42.2	4990 †	212	90	2090
8888	DE-23	500	13800	420	10					4780	184		2050
10156	GI-23	628 †	19800 ††	615 ††	7.6	13.3	73.5	660	48.6	4410	243	119 †	1930
10173	DN-23	541	13900	433	8.11	8.67	77.2	607	40.2	4650	215	92.9	2010
11035	GG-23	520	14500	520 ††			100	305 ††	62	2500 ††	100 ††		1100 ††
11079	DE-23	607 †	14700	515 ††	195 †					4570	238	100	1730
20204	GJ-23	510	14500	460	20 †	0.0037	0.0098 †	0.0602 ††	0.00833 ††	4560	249	96	1970
21043	GJ-23	512	13900	428	17.2	20	80	630	50	4880 †	230	106	2030
21100	DE-24	500	13300	421	7.44	7.26	53.9	571	39.8	5140 ††	199	83.8	2070
21138	DE-23	543	14800	439			71	630	38		200	81	1900
21190	AD-09	450 †	13600	660 ††	100 †	35 †	138 †	666	93 ††	4000 ††	228	83.3	1540 ††
21193	GJ-11	532	14200	480 †	45 †							90.2	1820
21196	DE-23	484	13600	398	9.01					5010 †	214	88	2170
21229	GI-23	513	14000	435	10.6	19.2	56.6	605	39.1	4660	210	85.6	2030
21230	GG-23	558	14600	442	3.64	39.3 ††	88.1	618	68.6 †	3980 ††	237	138 ††	1680 †
21232	DE-23	580 †	12600	480 †	110 †	100 ††	150 †	720	120 ††	5950 ††	280	160 ††	2220
50004	DE-23	559	15400 †	621 ††	12.9	9.74	98.1	680	57.9	4550	250	90.7	1990
50005	GJ-23	519	13200	401	10	10.8	83.5	626	53.9	4580	225	89.9	2090
50006	GE-11									11400 ††	2310 ††		3670 ††
50008	GJ-23	510	13900	430	37 †	35 †	85	630	70 †	4730	250	120 †	2130
50011	DE-23	550	14200	430	10	15	56	614	42	4720	229	93.7	2040
50012	DN-23	490	14000	420	11	15	72	560	44	4590	192	74	1850
50014	DE-23	510	13800	445	25 †	2.65	60	560	31.8	4590	180	70	1940
50017	DE-23	500	12800	440	70 †	48.3 ††	88	518	56	4500	170	80	1800
50020	GI-23	499	17700 ††	426	7.9	6.67	45	490 †	28.3	4640	190	80	1860
50021	GJ-23	500		420	20 †	25	64	507	46		221	103	1900
50024	GJ-23	474	13600	408	14	8	67	647	29	4630	151	45.3 ††	2010
50025	GJ-23	500	13100	422	30 †	63.8 ††	111	555	68.8 †	4270 †	226	121 †	1910
50027	DN-23	512	13900	434	14	2.2	51	586	27	4560	194	84	1940
50029	AD-23	505	14100	412	16.8	0.0001	0.02 †	0.06 ††	0.005 ††	3670 ††	283	100	1920
50032	DE-11	570 †	13900	480 †	10	12	98	651	45	5250 ††	233	95	2230
52283	GJ-23	570 †	14400	440	9.8	12.1	72.9	612	39.7	4530	218	99	2090
52387	GE-09	550	15500 †	454	53 †	42.4 ††	84.2	596	97.5 ††				
52427	ZZ-23	530	13000	400									

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Sulphur (%w/w)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	0.14	0.225	0.228	0.12	0.186	0.515	0.085	0.178	0.257	0.149	0.142	0.792
8888	DE-23	0.138	0.215	0.218	0.113	0.209	0.537	0.094	0.201 †	0.282	0.159	0.142	0.769
10156	GI-23	0.208 †	0.278 ††	0.288 ††	0.165 †	0.185	0.552	0.129 ††	0.211 ††				
10173	DN-23	0.139	0.208	0.22	0.116	0.188	0.536	0.105 †	0.177	0.229	0.134	0.124	0.676
11035	GG-23			0.83 †									
11079	DE-23	0.13	0.2	0.21	1.11 †					0.26	0.159	0.146	0.81
20204	GJ-23	0.13	0.209	0.209	0.11	0.165	0.494	0.086	0.175	0.229	0.144	0.137	0.738
21043	GJ-23	0.121	0.192	0.197	0.108	0.172	0.481	0.085	0.168	0.23	0.132	0.123	0.635
21100	CA-37	0.136	0.196	0.201	0.113	0.19	0.497	0.11 ††	0.187	0.221	0.126	0.129	0.718
21138	DE-23	0.138	0.208	0.215	0.118	0.21	0.58	0.098 †	0.2 †	0.24	0.15	0.14	0.74
21196	DE-23	0.126	0.201	0.2	0.109					0.276	0.124	0.144	0.877 ††
21229	GI-23	0.134	0.21	0.219	0.112	0.186	0.497	0.0857	0.17	0.239	0.144	0.131	0.72
21230	GG-23	0.144	0.231	0.224	0.123	0.181	0.47	0.089	0.166	0.192 ††	0.117 ††	0.101 ††	0.101 ††
21232	DE-23	0.153	0.227	0.231	0.119	0.2	0.547	0.086	0.185	0.248	0.148	0.134	0.731
50004	DE-23				0.207	0.627 †	0.119 ††	0.194	0.256	0.174 ††	0.131	0.746	
50005	GJ-23	0.131	0.185	0.212	0.111	0.181	0.516	0.0859	0.168	0.241	0.14	0.131	0.718
50008	GJ-23	0.143	0.228	0.227	0.126	0.185	0.525	0.088	0.183	0.265	0.157	0.142	0.78
50011	DE-23	0.141	0.213	0.22	0.124	0.187	0.52	0.09	0.176	0.25	0.15	0.14	0.8
50012	DN-23	0.13	0.2	0.21	0.11	0.18	0.5	0.087	0.17	0.245	0.139	0.127	0.698
50014	DE-23	0.126	0.198	0.2	0.114	0.189	0.533	0.082	0.17	0.256	0.143	0.136	0.734
50017	DE-23	0.13	0.192	0.196	0.113	0.164	0.443	0.0713 †	0.141 †	0.237	0.124	0.124	0.679
50020	GI-23	0.112	0.177	0.18	0.0873 †	0.122 ††	0.549	0.0631 ††	0.121 ††	0.21	0.13	0.11 †	0.78
50021	GJ-23	0.124	0.192	0.192	0.107	0.157	0.442	0.097 †	0.149	0.22	0.146	0.132	0.741
50024	GJ-23	0.11	0.187	0.197	0.102	0.165	0.495	0.088	0.16	0.229	0.128	0.114	0.654
50025	GJ-23	0.114	0.181	0.175	0.097	0.159	0.427 †	0.0715 †	0.134 ††	0.243	0.144	0.139	0.732
50027	DN-23	0.133	0.205	0.216	0.103	0.175	0.529	0.0825	0.169	0.24	0.15	0.128	0.723
50029	CA-37	0.123	0.172	0.193	0.118	0.187	0.474	0.121 ††	0.181	0.245	0.146	0.136	0.697
50032	DE-30	0.148	0.223	0.19	0.13	0.207	0.687 †	0.133 ††	0.16	0.3 ††	0.16	0.15	0.7
52283	GJ-23	0.115	0.202	0.208	0.114	0.165	0.487	0.084	0.17	0.25	0.149	0.132	0.754
52427	ZZ-23	0.12	0.19	0.18	0.1								

Lab. Code #	Method Codes	Plant sample identification and values for 2016: Zinc (mg/kg)											
		February 2016 (Round 2)				May 2016 (Round 5)				August 2016 (Round 8)			
		ASP 1602-1	ASP 1602-2	ASP 1602-3	ASP 1602-4	ASP 1605-1	ASP 1605-2	ASP 1605-3	ASP 1605-4	ASP 1608-1	ASP 1608-2	ASP 1608-3	ASP 1608-4
22	DE-23	18.5	28.9	28.8	17.3	40.1	39.2	9.89	24.2	56.7	81.9	21 †	28.3 †
8888	DE-23	18.7	27	27.9	17.5	41.7	38.8	8.11	24.7	57.2	88.6 †	23.4 ††	30 ††
10156	GI-23	17.7	29.7	29.8	18.4	33.6	38.8	8.2	23.4	46.7	67.5	19.4	23.7
10173	DN-23	18.7	27.8	29.7	18.7	33.5	34.8	7.38	21.3	50.3	77.4	18.5	25.2
11035	GG-23	17	26	26	15	33	32	5.5 ††	20	52	80	16 ††	22 †
11079	DE-23	13.5 †	25.5	26.7	12 †					58.6	92.4 ††	21.7 ††	30.2 ††
20204	GJ-23	18.3	22.5 ††	27	17.1	37.9	34.9	9.5	24.5	49.1	75.6	18.8	25.7
21043	GJ-23	15 †	23.4	24.7	15.9	34	32.3	7.77	20.1	50.7	74.7	18.6	23.6
21100	DE-24	18.4	28.8	29.1	17	39.9	41.8	8.79	24	50	76.8	18.7	24.3
21138	DE-23	18.9	27.9	28.5	16.6	38	42	8	24	49	76	18	25
21190	AD-13	15.1	27.6	30.1	19.5	40.6	43.5	13.1 ††	24.7	46	87.5 †	24.8 ††	28.8 ††
21193	GJ-11	16.2	26.2	26.3	10.4 †							16.9	23.4
21196	DE-23	16.3	26.3	25.3	15.8					57.2	41.8 ††	20.7	29.4 ††
21229	GI-23	18.4	27.5	29.1	16.8	38.3	35.5	8.73	21.8	50	76.5	19.6	24.8
21230	GG-23	18.9	29.7	29.5	17.8	36.4	33.6	8.4	21	40 ††	63.6 ††	14.7 ††	19.7 ††
21232	DE-23	18.9	28.3	29	17	39.2	41.1	9.1	24.2	52.8	80.5	18.5	26
21234	GH-09									52.6	80.6	18.2	24.3
50004	DE-23	16.5	25.1	26.6	14.9	40.9	39.6	9.34	26.1	49.3	83.1	19.9	25.3
50005	GJ-23	17.6	27.3	27.6	17	34.8	36.2	8.64	21.7	49.6	77.8	20	24.9
50008	GJ-23	16.9	25.5	26.4	15.8	35.3	34.5	8.8	22	51.2	74.8	19.4	24.8
50011	DE-23	18.5	26.9	29.6	17.2	39.1	39	9.7	23.3	54.7	78.2	19.6	25.8
50012	DN-23	17	26	27	16	37	39	9.3	23	49	76	18	24
50014	DE-23	17.5	27.9	28.3	17.4	38.9	40.6	7.85	22.5	52.2	77.8	19	26
50017	DE-23	16	28.4	24.1	16.8	42.8	34.7	7.52	19.3 †	56.4	69.5	19	24.7
50020	GI-23	14.8 †	21.8 ††	22.4 ††	13.3 †	39.8	35.8	9.47	24.1	51.4	73.1	17.8	24.4
50021	GJ-23	18.1	28.5	27.9	18.1	34.7	34.9	8.27	23.8	50.9	72.1	18.5	22.9
50024	GJ-23	17.9	26.8	23.9	15.7	40.8	42.5	9.05	24.1	51.7	73.3	18.3	24.9
50025	GJ-23	17.7	25.9	27.1	18.9	39.9	36.8	9.92	24.4	54.8	74.3	21.2 †	28 †
50027	DN-23	17.4	28.4	27.7	15.7	37.3	40.4	8.71	22.8	55.9	80.9	18.6	25.5
50029	AD-23	18	25.7	26.8	17.5	39.1	36.3	7.69	19.2 †	29.9 ††	81.5	21.9 ††	27.6
50032	DE-11	18.1	27.6	27.9	15.8	36.9	40.1	9.04	22.8	59.7 ††	78.5	18.4	25.7
52283	GJ-23	13.9 †	25	25.9	17.3	26.1 ††	29	6.04 ††	18.5 ††	52.1	77.2	19.6	25.2
52387	GE-09	15.6	26.5	24.7	14	28.9 ††	24.7 †	6.8	18.4 ††	42.3 ††	66 †	15 ††	21 ††
52427	ZZ-23	16	23 †	22 ††	14								