Australasian Soil and Plant Analysis Council Inc.

ASPAC PLANT PROFICIENCY TESTING PROGRAM REPORT 2018

L.A. Sparrow, D.J. Lyons and R.J. Hill

April 2019

ISSN # 1446-3598

© Australasian Soil and Plant Analysis Council Inc., 2019

All rights reserved.

This report is subject to copyright. Apart from any use as permitted under the Australian Copyright Act 1968 and as amended, portions of the report may be used by participating laboratories and members of the Australasian Soil and Plant Analysis Council Inc. (ASPAC) to improve the quality of laboratory analysis and the training of laboratory managers, analysts and others who make use of plant chemical tests for research or advisory purposes and for other technical reasons, such as soil fertility advice and environmental condition and trend monitoring. This use is conditional on an inclusion of acknowledgement of the source. Reproduction for sale or use by others, whether direct or indirect, requires prior written permission from ASPAC. Such requests should be addressed to the Convenor of ASPAC's Laboratory Proficiency Committee (ASPAC-LPC) or the Honorary Secretary of ASPAC. Refer to the ASPAC Public Web Site, www.aspac-australasia.com for contact details.

An appropriate citation for this report is:

Sparrow, L.A., Lyons, D.J. and Hill, R.J. (2019). *ASPAC Plant Proficiency Testing Program Report 2018.* ASPAC, Melbourne, Victoria.

Disclaimer

Whilst all care has been taken in the preparation of this ASPAC Annual Report, persons using its contents do so on the condition and understanding that ASPAC, its officers and agents are not responsible for the results of any action reliant on the information contained herein or for any errors or omissions.

ASPAC and its officers and agents expressly disclaim all and any liability and responsibility to any person in respect of anything and the consequences of anything done or omitted to be done by any such person in reliance, whether wholly or partially, upon the whole or any part of the contents of this report.

File: ASPAC Plant Annual Report 2018 FINAL 24 April 2019

Foreword

This ASPAC annual report is the 14th 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 44 participants in February, May and August 2018. 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

Department of Environment and Science (DES), Queensland, Australia, commissioned by GPL to confirm that test plant samples were homogenous prior to circulation for proficiency testing purposes, are acknowledged, as are operational staff of GPL.

Membership of ASPAC Laboratory Proficiency Committee 2018

Name	*Location*	*Email*
R.J. Hill (Convenor)	Hamilton, New Zealand	roger.hill@hill-labs.co.nz
D.J. Lyons	Queensland, Australia	daveandtrish8@bigpond.com
L.A. Sparrow	Tasmania, Australia	leigh@birdbrainsdownunder.com.au

Service Provider Details 2018

Name, Street and Postal Address	*Key Personnel & Current Emails.*
Global Proficiency Ltd (GPL)[A].	Lana Pears, Programme Leader – Ag. Programmes. lana.pears@global-proficiency.com
Ruakura Research Campus, Hamilton 3214, NZ;	Gordana Aleksic gordana.aleksic@global-proficiency.com
PO Box 20474, Hamilton 3241, NZ P. +64 7 850 4483	Dr Jules Marsh jules.marsh@global-proficiency.com
	Hannah Richards filled in for Lana Pears during 2018 while Lana was on maternity leave

[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.

Contents

Page

Foreword ... iii

Acknowledgements ... iv

Membership of ASPAC Laboratory Proficiency Committee 2018 ... iv

Service Provider Details 2018 ... iv

Contents ... v

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

1. Introduction ... 1

2. Program Details ... 1

2.1 Responsibilities ... 1

2.2 Plant program participation ... 1

2.3 Tests, units, laboratory participation and concentration ranges ... 1

2.4 Sample preparation and identification ... 3

2.5 Data analysis and periodic reporting ... 4

2.6 ASPAC's criteria for certification of laboratories for plant tests ... 7

3. Summary Statistics ... 8

4. Comments on Measurement Performance ... 20

Appendix 1: List of laboratories (including contact details at the time) who participated in ASPAC's Plant ILPP in 2018, arranged by country ... 22

Appendix 2: Homogeneity data and statistical assessments* for Total Plant N% (Dumas N) on the 12 test plant samples in 2018. ... 25

Appendix 3: Statistical procedures used by ASPAC for its contemporary plant ILPP ... 26

Appendix 4: Plant analytical method codes and raw program data for the 12 plant samples across three rounds in 2018 ... 26

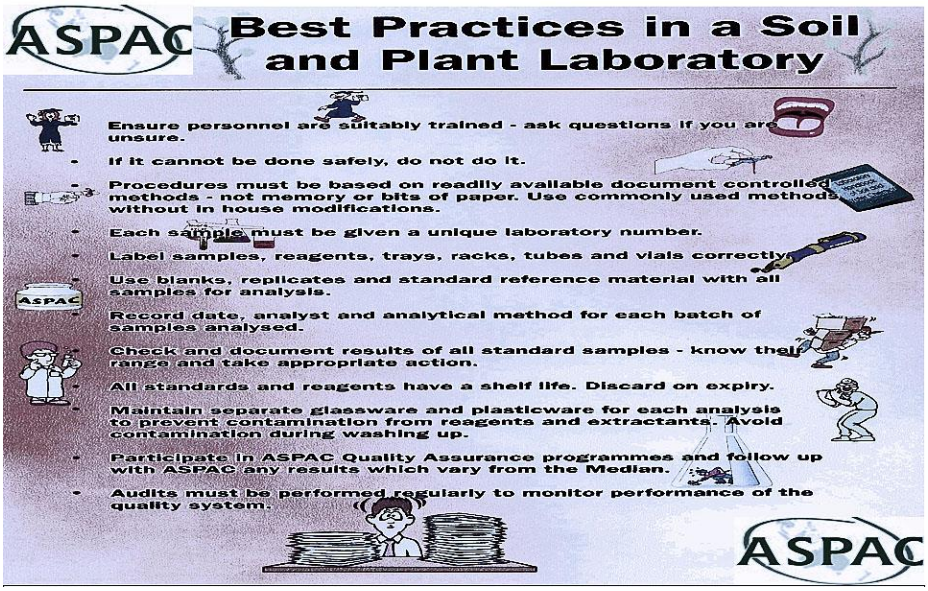
Notes on ASPAC Method-specific Certification: *what it is and what it is not*

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 (1993)[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 2018 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 conducted in February, May and August 2018. For historical details on 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 2018. 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

Forty-five laboratories [36 from Australia, 1 from Fiji, 1 from Guatemala, 6 from New Zealand, and 1 from Papua New Guinea] participated in the ASPAC plant ILPP in 2018, 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 2018. Participants were invited to analyse each sample using methods normally employed in their laboratory. Tests commonly performed are documented in Table 1. 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 17 of the 22 plant tests, the population average concentration for a given element was greater than corresponding medians (average values not presented), for 4 tests (Ca, C, Mg and S) median and average values were the same, while for the other test (N) the average was less than the median. Moreover, 6 grand median concentrations were lower than their 2017 counterparts, 10 were much the same, and 6 were higher.

Table 1. Plant tests, elemental symbols, units, the arithmetic average numbers of results per round submitted by participating laboratories in the ASPAC 2018 Plant ILPP, plus the concentration ranges and the final grand median concentration for all 22 tests.

2018 Plant tests	Symbol	Units	Average Number of participants			Concentration ranges (final) by test across 12 samples, as reported by labs		
			Feb 18	May 18	Aug 18	Minimum	Median	Maximum
Aluminium	Al	mg/kg	27	28	27	2.2	39.2	7910.0
Boron	B	mg/kg	33	33	32	0.8	14.8	49.1
Cadmium	Cd	µg/kg	17	18	18	3.1	40.4	412.0
Calcium	Ca	%	38	36	38	0.01	0.5	1.5
Carbon	C	%	24	26	24	36.3	44.0	49.1
Chloride	Cl	mg/kg	22	22	21	165.0	1125.0	13400.0
Cobalt	Co	µg/kg	20	20	23	5.9	58.8	2960.0
Copper	Cu	mg/kg	36	35	37	3.1	6.1	34.7
Iron	Fe	mg/kg	37	34	37	23.2	64.5	3600.0
Lead	Pb	µg/kg	16	17	16	2.7	65.8	308.0
Magnesium	Mg	%	38	36	38	0.1	0.2	0.4
Manganese	Mn	mg/kg	37	35	37	12.4	35.8	1820.0
Molybdenum	Mo	µg/kg	21	22	22	123.0	567.5	2510.0
Nitrate-N	NO_3-N	mg/kg	18	18	14	0.9	8.8	6350.0
Nitrogen	N	%	34	33	35	0.9	2.6	4.0
Phosphorus	P	%	37	36	37	0.1	0.3	0.7
Potassium	K	%	38	36	38	0.2	1.2	7.8
Selenium	Se	µg/kg	18	20	18	35.5	84.0	1380.0
Silicon	Si	%	8	8	8	0.00	0.02	0.1
Sodium	Na	mg/kg	35	34	33	6.7	136.3	8600.0
Sulfur	S	%	32	33	31	0.1	0.2	0.7
Zinc	Zn	mg/kg	36	35	36	13.7	29.9	112.0

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^{o}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.

The 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 requirements[6].

Ultimately, the samples used in the three rounds of the 2018 program were distributed and coded as follows: February 2018: ASP 1802-1 to 1802-4; May 2018: ASP 1805-1 to 1805-4 and August 2018: ASP 1808-1 to 1808-4. 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. Seven of the 12 plant test samples were sourced from Australia, four from New Zealand and one from 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.

Table 2. Sample identification and the origin of the samples included in the 2018 ASPAC plant ILPP.

Sample ID	*Round ID*	*Sample Type*	*Origin*
ASP 1802-1	2	Vetch	AUS
ASP 1802-2		Rhodes Grass	AUS
ASP 1802-3		Green Tea	AUS
ASP 1802-4		Red Quinoa	AUS
ASP 1805-1	5	Cabbage	Vietnam
ASP 1805-2		Celery	NZ
ASP 1805-3		Camellia Leaves	NZ
ASP 1805-4		Brown Rice	NZ
ASP 1808-1	8	Lentils	AUS
ASP 1808-2		Barley	AUS
ASP 1808-3		Avocado Leaves	NZ
ASP 1808-4		Buffell Grass	AUS

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, 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, it was expected that plant digests would be suitably diluted.

---

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.)

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, newsletters from GPL were sent to all participating laboratories. Their main purpose was to assist in the interpretation of interim reports. Also included in GPL’s newsletters was information about upcoming events and operational administration of the program.

Laboratories that participated in the 2018 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.

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 50th 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 equal zero. The arithmetic mean is sensitive to extreme measurements.
MAD	The Median of the Absolute Deviations, 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 25th percentile (referred to as the first quartile; Q_1) from the score at the 75th 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 2018.

Finally, if 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 was not the case in 2018.

No certification was provided for the (total) Plant Si test because the LPC determined that laboratories using digestion procedures could not possibly be getting all plant Si into solution because Si is mostly insoluble in digestion acids except hydrofluoric acid. Very few laboratories currently use methods that are able to determine true total Si (e.g. acid digests that include HF, X-Ray Fluorescence Spectroscopy, Neutron Activation Analysis and Alkaline Fusion techniques).

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 2018 Plant program remained valid until superseded by findings from the following Plant ILPP.

3. Summary Statistics

This section provides summary information and data (sometimes rounded only for table formatting purposes) on a test-by-test basis (in alphabetical order) for each of the 12 samples used across the three rounds in 2018. 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.

2018: Aluminium (mg Al/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	28	28	28	25	28	28	28	28	28	25	28	28
Minimum i	50	1240	901	1	12.5	22.1	77.9	8.07	7.42	0.245	16.8	28.3
Maximum i	172	3600	1240	11.7	48.5	69.3	9030	39	24.6	8.86	129	133
Median i	107	3190	1100	4.42	21.8	49	7860	17.9	13.8	2.28	29.2	95.4
Mean i	105	3020	1090	5.28	23.1	49.2	7440	18.5	13.8	2.87	31.4	94
MAD i	11.7	105	65	2.24	3.1	5.05	515	3.25	1.3	0.88	3.15	14.1
IQR i	21.2	218	130	4.43	5.28	9.75	1100	6.58	2.45	2.06	5.63	20.7
Robust CV% i	15	5	9	74	18	15	10	27	13	67	14	16
Median f	109	3200	1100	4.42	20.9	49	7910	17.8	14.1	2.24	29.4	106
Mean f	109	3210	1090	5.28	20.3	49.4	7820	17.7	14.1	2.17	28.6	104
MAD f	7	60	65	2.24	2.1	4.65	420	3.2	1.05	0.79	2.5	12
IQR f	13.3	95	130	4.43	3.9	8.83	983	6.15	1.78	1.19	4.5	20.6
Robust CV% f	9	2	9	74	14	13	9	26	9	39	11	14
Outliers	4	6	0	0	4	2	2	1	3	4	3	3
Stragglers	2	3	0	0	3	0	0	0	1	1	0	2

2018: Boron (mg B/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	33	33	33	33	33	33	33	32	32	31	32	32
Minimum i	16.7	1.3	12	8.67	12.3	32.7	40.2	0.0999	4.72	0.01	24	1.54
Maximum i	37.9	46.1	41.7	25.3	19.1	49.1	75.4	11.2	20.3	14.6	57.1	13.6
Median i	25.3	6.72	20.9	14.4	15.5	42.3	48.5	1.3	7.21	0.821	33.8	3.44
Mean i	25.1	9.21	21.6	15.1	15.4	41.6	48.6	2.07	7.69	1.96	34.8	4.09
MAD i	1.3	0.46	1.1	1.3	0.5	3	2.1	0.371	0.55	0.299	1.6	0.49
IQR i	2.8	2.2	2	2.3	1	5.5	3.6	0.988	0.993	0.643	3.1	0.913
Robust CV% i	8	24	7	12	5	10	6	56	10	58	7	20
Median f	25.4	6.62	20.9	13.9	15.7	42.3	49.1	1.14	7.23	0.802	33.5	3.46
Mean f	25.1	6.61	21	13.9	15.6	41.6	48.5	1.19	7.21	0.814	33.2	3.48
MAD f	0.6	0.22	0.9	0.75	0.4	3	1.7	0.194	0.31	0.154	1.5	0.235
IQR f	1.08	0.38	1.93	1.43	0.775	5.5	2.65	0.409	0.698	0.303	2.88	0.448
Robust CV% f	3	4	7	8	4	10	4	27	7	28	6	10
Outliers	6	13	7	9	6	0	5	6	6	4	5	7
Stragglers	3	1	0	2	1	0	1	5	4	5	1	3

2018:Cadmium (µg Cd/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	17	18	17	16	18	20	17	18	18	17	19	18
Minimum i	22	26	15	8.33	33.1	143	13	35.2	3.27	0.1	161	18
Maximum i	92.7	107	95.8	74.8	686	1090	219	965	212	219	367	211
Median i	41.1	43	48.4	11.4	39.6	412	15.5	44.5	6	3.1	246	22.4
Mean i	43.6	47.2	50	15.7	77.1	433	31.4	96.1	20.5	19.2	250	35
MAD i	2.45	2.3	2.85	1.1	1.8	33	1	3.1	1	1.02	9	1.45
IQR i	5.4	7.1	5.5	2.28	6.2	81.5	5.8	6.98	4.85	4.03	33	2.88
Robust CV% i	10	12	8	15	12	15	28	12	60	96	10	10
Median f	41.1	43	48.4	11.4	39.6	412	15.5	44.5	6	3.1	246	22.4
Mean f	41.8	43.1	49.2	11.8	40.6	407	15.2	45	5.8	3.36	246	22.1
MAD f	2.45	2.3	2.85	1.1	1.8	33	1	3.1	1	1.02	9	1.45
IQR f	5.1	4.6	5.05	2.15	4.68	59.8	1.65	4	1.63	2.38	18.3	2.55
Robust CV% f	9	8	8	14	9	11	8	7	20	57	5	8
Outliers	2	5	2	1	2	4	5	1	5	3	5	3
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2018: Calcium (%Ca)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	38	38	38	38	36	36	36	36	38	38	38	38
Minimum i	0.51	0.409	0.447	0.0245	0.395	0.61	0.99	0.00308	0.027	0.00533	0.907	0.248
Maximum i	0.897	0.593	0.702	0.169	0.596	1.03	1.68	0.18	0.11	366	2.37	0.64
Median i	0.771	0.513	0.577	0.0349	0.534	0.895	1.46	0.011	0.065	0.03	1.34	0.329
Mean i	0.763	0.515	0.579	0.0416	0.527	0.882	1.45	0.018	0.0656	9.66	1.36	0.335
MAD i	0.023	0.018	0.02	0.00195	0.0225	0.039	0.075	0.001	0.004	0.002	0.04	0.016
IQR i	0.0455	0.0373	0.0385	0.0036	0.0398	0.075	0.138	0.0022	0.00835	0.00295	0.085	0.0293
Robust CV% i	4	5	5	8	6	6	7	15	10	7	5	7
Median f	0.771	0.512	0.577	0.034	0.54	0.9	1.47	0.0109	0.065	0.03	1.34	0.33
Mean f	0.769	0.512	0.578	0.034	0.537	0.897	1.48	0.0111	0.0656	0.0304	1.35	0.331
MAD f	0.0215	0.0145	0.0155	0.00125	0.018	0.03	0.07	0.0009	0.003	0.0009	0.04	0.012
IQR f	0.043	0.0288	0.0258	0.00305	0.035	0.055	0.13	0.002	0.0064	0.0015	0.075	0.022
Robust CV% f	4	4	3	7	5	5	7	14	7	4	4	5
Outliers	4	5	4	9	2	5	2	7	7	9	3	5
Stragglers	0	1	2	1	1	2	1	0	2	4	0	0

2018: Carbon (%C)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	24	24	24	24	26	26	26	25	24	24	24	24
Minimum i	40.9	37.5	42.4	41.4	36.1	32.6	36.8	38.6	38.9	38.7	42.9	39
Maximum i	48.4	40.9	49.5	46.3	42.8	45.6	46.5	45	44.9	44.7	51.7	45
Median i	44.4	40.2	48.7	45.2	41.3	36.2	45.6	43.6	43.9	43.9	49	43.8
Mean i	44	40	48	44.7	41	35.9	44.7	43.1	43.6	43.5	48.7	43.5
MAD i	0.5	0.4	0.55	0.55	0.8	0.8	0.4	0.8	0.6	0.55	0.4	0.45
IQR i	1.13	0.725	1.35	1.5	1.53	2	1.65	1.8	1.2	1.05	0.85	0.925
Robust CV% 1	2	1	2	2	3	4	3	3	2	2	1	2
Median f	44.5	40.3	48.8	45.5	41.7	36.3	45.7	43.9	44.1	43.9	49.1	43.9
Mean f	44.5	40.3	48.6	45.5	41.6	36.3	45.7	43.6	43.9	43.8	49.2	43.9
MAD f	0.3	0.2	0.4	0.35	0.55	0.35	0.15	0.6	0.5	0.5	0.2	0.4
IQR f	0.5	0.525	1.03	0.65	1.1	0.65	0.25	0.9	0.9	0.95	0.5	0.9
Robust CV% f	1	1	2	1	2	1	0	2	2	2	1	2
Outliers	6	3	2	5	2	4	7	3	2	2	4	3
Stragglers	1	1	2	1	2	4	3	1	1	0	3	0

2018: Chloride (mg Cl/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	22	22	22	22	22	22	21	22	21	21	21	21
Minimum i	0.425	1.25	0.1	0.05	413	184	41.8	51.7	473	946	380	6500
Maximum i	7600	15500	4160	1500	5450	13800	22700	3500	1870	1620	2710	8440
Median i	5200	13300	1280	541	4030	12600	200	211	1060	1170	582	7520
Mean i	4860	12000	1530	606	3920	11500	1460	364	1130	1220	969	7510
MAD i	400	1000	255	177	380	800	79	67.5	81	100	102	220
IQR i	768	2150	655	320	690	2280	173	123	216	170	384	480
Robust CV% i	11	12	38	44	13	13	64	43	15	11	49	5
Median f	5200	13400	1110	515	3930	12800	165	206	1040	1140	534	7500
Mean f	5170	13200	1170	505	3910	12800	163	201	1040	1140	534	7470
MAD f	270	850	160	90	275	150	46	52.5	56	60	44	165
IQR f	430	1550	288	183	523	250	86.3	90	98.5	130	79.8	305
Robust CV% f	6	9	19	26	10	1	39	32	7	8	11	3
Outliers	4	2	6	3	2	2	4	2	5	2	5	2
Stragglers	2	0	2	3	2	8	1	0	1	2	2	3

2018: Cobalt (µg Co/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	20	20	20	20	21	21	19	19	23	21	23	23
Minimum i	147	482	101	10	10	12.8	13	5.52	79.3	2.8	26.4	52
Maximum i	248	3460	190	95	2010	2380	773	67.9	212	98.8	175	159
Median i	156	2960	109	30	54.1	63.4	19.4	12.3	182	5.9	34	102
Mean i	167	2800	124	35.1	148	172	97.6	18.1	171	23.2	49.9	103
MAD i	6	90	2.5	0.9	2.7	6.3	1.95	0.8	0.5	0.88	6	4.95
IQR i	22.3	270	28.8	8.58	5.3	28.6	25.9	7.75	19.5	21.5	17.1	15.6
Robust CV% i	11	7	20	21	7	33	99	47	8	270	37	11
Median f	156	2960	109	30	54.1	63.4	19.4	12.3	182	5.9	34	102
Mean f	158	2960	108	30	54	64.8	19	12.4	182	5.44	37.4	101
MAD f	6	90	2.5	0.9	2.7	6.3	1.95	0.8	0.5	0.88	6	4.95
IQR f	10.8	200	3.5	1.7	4.38	18.2	4.23	1.58	1	1.09	10.4	11.1
Robust CV% f	5	5	2	4	6	21	16	9	0	14	23	8
Outliers	4	5	10	12	3	5	9	7	17	12	5	6
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2018: Copper (mg Cu/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	36	36	36	36	35	35	35	35	37	37	37	37
Minimum i	5.51	2.71	6.46	4.39	0.1	0.244	0.9	0.151	6.7	2.56	23.5	1.2
Maximum i	18	13.4	18	16.9	9.63	14.6	8.65	5.38	16.9	9.18	39.5	6.24
Median i	6.41	9.45	7.6	5.01	3.18	10.7	4.44	3.7	8.3	5.95	34.7	3.6
Mean i	7.03	9.32	7.93	5.52	3.39	10.7	4.36	3.62	8.58	5.93	34.3	3.63
MAD i	0.325	0.39	0.395	0.32	0.24	0.7	0.26	0.31	0.3	0.27	1.7	0.18
IQR i	0.585	0.778	0.683	0.648	0.525	1.55	0.435	0.61	0.5	0.65	3.4	0.35
Robust CV% i	7	6	7	10	12	11	7	12	4	8	7	7
Median f	6.25	9.42	7.6	4.9	3.13	10.7	4.5	3.82	8.3	5.97	34.7	3.59
Mean f	6.25	9.4	7.61	4.92	3.17	10.9	4.53	3.78	8.3	6.03	34.7	3.58
MAD f	0.29	0.26	0.235	0.255	0.185	0.6	0.2	0.27	0.075	0.18	1.5	0.135
IQR f	0.58	0.51	0.48	0.505	0.375	1.25	0.39	0.525	0.135	0.39	2.9	0.273
Robust CV% f	7	4	5	8	9	9	6	10	1	5	6	6
Outliers	6	8	2	3	4	4	5	3	6	7	2	7
Stragglers	1	1	4	1	1	0	1	1	11	3	0	2

2018: Iron (mg Fe/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	37	37	37	37	34	34	34	34	37	37	37	37
Minimum i	74.7	891	239	15.8	52.8	7.41	39.4	14.4	57.6	36	42.1	42.7
Maximum i	147	4150	1410	137	113	51.2	76.6	30.8	109	53.8	67.7	99.3
Median i	133	3580	500	47.3	78.8	38.8	56.1	23.1	73	45.7	53.7	79.4
Mean i	132	3310	510	48.3	79.5	38.1	56.7	22.9	73.9	45.6	54.4	78
MAD i	9	250	42	2.8	4.2	3.1	2.45	2.6	3.2	2.9	3.8	4.5
IQR i	15	580	70	6	7.03	5.83	4.65	5.18	5.9	5.8	6.9	9.7
Robust CV% i	8	12	10	9	7	11	6	17	6	9	10	9
Median f	133	3600	505	47.3	78.7	38.8	56	23.2	73	45.7	53.4	79.8
Mean f	134	3620	499	47.2	78.8	39	56.1	23.1	73.1	45.8	54.1	79.9
MAD f	9	180	31	2.2	2.6	2.9	1.5	2.4	2.75	2.8	3.85	2.8
IQR f	14	290	52	4.7	5.1	5.15	2.5	4.6	5.48	5.48	6.7	5.35
Robust CV% f	8	6	8	7	5	10	3	15	6	9	9	5
Outliers	2	7	5	6	5	3	8	0	3	1	1	6
Stragglers	0	1	3	2	3	0	5	1	2	0	0	4

2018: Lead (µgPb/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	16	16	16	15	17	16	17	16	15	15	16	16
Minimum i	61	48	149	1	49	39	42	3.76	7.84	1	52.5	61.6
Maximum i	458	416	471	368	600	529	378	444	438	867	790	198
Median i	103	308	171	6.89	68.8	62.1	80.6	15.2	10.9	2.7	62.7	77.4
Mean i	133	298	199	37.8	130	131	115	80.1	67.5	82.5	122	97.5
MAD i	6.1	8	8	2.12	4.4	10.1	4.8	1.9	2.57	1.29	1.8	11.6
IQR i	13	29.3	18.5	6.72	17.4	24.1	12.4	36.8	21.3	23.2	8.03	43.9
Robust CV% i	9	7	8	72	19	29	11	180	146	636	9	42
Median f	103	308	171	6.89	68.8	62.1	80.6	15.2	10.9	2.7	62.7	77.4
Mean f	104	304	168	7.5	68.7	61.5	80.4	15.3	11.5	3.22	63.4	76.4
MAD f	6.1	8	8	2.12	4.4	10.1	4.8	1.9	2.57	1.29	1.8	11.6
IQR f	11.3	24	13	3.23	10.9	20.4	8.3	3.1	3	2.38	4.03	19
Robust CV% f	8	6	6	35	12	24	8	15	20	65	5	18
Outliers	4	3	3	3	5	4	4	6	6	8	4	4
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2018: Magnesium (%Mg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	38	38	38	38	36	36	36	36	38	38	38	38
Minimum i	0.2	0.305	0.23	0.146	0.13	0.13	0.0628	0.104	0.06	0.07	0.298	0.174
Maximum i	0.29	0.38	0.294	0.221	0.2	0.206	0.1	0.156	0.115	0.122	0.396	0.236
Median i	0.221	0.356	0.264	0.179	0.156	0.173	0.08	0.138	0.102	0.105	0.348	0.206
Mean i	0.223	0.353	0.262	0.178	0.156	0.175	0.0801	0.136	0.0998	0.105	0.344	0.203
MAD i	0.007	0.01	0.0075	0.0075	0.0045	0.008	0.002	0.007	0.0038	0.005	0.012	0.008
IQR i	0.0145	0.019	0.0158	0.0143	0.01	0.0168	0.00343	0.0125	0.0069	0.0095	0.0258	0.0145
Robust CV% i	5	4	4	6	5	7	3	7	5	7	5	5
Median f	0.22	0.357	0.264	0.179	0.156	0.171	0.0795	0.138	0.102	0.105	0.35	0.206
Mean f	0.219	0.358	0.263	0.178	0.156	0.173	0.0793	0.138	0.102	0.106	0.347	0.204
MAD f	0.0065	0.008	0.007	0.006	0.004	0.006	0.0014	0.007	0.002	0.005	0.01	0.006
IQR f	0.0128	0.016	0.0135	0.0105	0.008	0.0145	0.00255	0.0118	0.0043	0.0075	0.019	0.0128
Robust CV% f	4	3	4	4	4	6	2	6	3	5	4	5
Outliers	2	2	5	3	5	4	8	2	4	3	3	2
Stragglers	2	3	2	3	0	2	2	0	5	0	2	2

2018: Manganese (mg Mn/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	37	37	37	37	35	35	35	35	37	37	37	37
Minimum i	61.5	120	248	9.14	19.4	24.7	1660	6	4.04	7.18	86.5	7.75
Maximum i	86.4	173	486	35.8	41.2	48.5	2130	29	14.1	18.4	164	29.9
Median i	76	153	290	18.1	32.3	39.1	1850	20.2	12.4	15.8	146	25.3
Mean i	75.5	153	296	18.6	32	38.8	1850	20.1	12	15.3	144	24.8
MAD i	4	5	13	0.8	1	2.6	90	0.9	0.5	0.7	6	1
IQR i	7.8	11	30	1.7	2.1	5	150	1.7	1	1.3	11	1.8
Robust CV% i	8	5	8	7	5	9	6	6	6	6	6	5
Median f	76.1	153	290	18	32.3	39.2	1820	20.1	12.4	16	146	25.4
Mean f	75.9	153	292	18	32.3	39.3	1840	20.1	12.4	16	145	25.5
MAD f	3.9	4.5	11	0.7	0.95	2.35	70	0.65	0.4	0.4	5	0.8
IQR f	7.05	7.5	25	1.3	1.83	4.78	140	1.2	0.75	0.825	10	1.6
Robust CV% f	7	4	6	5	4	9	6	4	4	4	5	5
Outliers	1	9	1	5	3	3	0	3	4	5	1	3
Stragglers	0	0	1	1	0	0	2	4	1	4	1	1

2018: Molybdenum (µg Mo/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	21	21	21	21	22	22	22	22	23	20	22	23
Minimum i	10	92	7	22	543	17.8	209	585	1430	967	10	435
Maximum i	506	980	417	629	1500	1820	597	1760	3320	2170	251	799
Median i	264	759	253	404	599	1110	253	888	2510	1650	123	536
Mean i	261	725	242	396	670	1100	316	945	2500	1620	127	551
MAD i	13	22	7	20	30	55	6	56	35	82	5	25
IQR i	47	74	35	57	49.8	140	104	111	130	133	22.5	49.5
Robust CV% i	13	7	10	10	6	9	31	9	4	6	14	7
Median f	264	759	253	404	599	1110	253	888	2510	1650	123	536
Mean f	270	757	253	415	609	1090	251	891	2530	1590	124	540
MAD f	13	22	7	20	30	55	6	56	35	82	5	25
IQR f	21.8	32.5	12.8	36.5	40	105	13	101	55	110	12.8	45.5
Robust CV% f	6	3	4	7	5	7	4	8	2	5	8	6
Outliers	7	7	9	6	3	4	9	4	7	3	8	3
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2018: Nitrate-nitrogen (mg NO_3-N/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	17	19	17	17	19	19	16	17	14	14	14	14
Minimum i	1	272	3.7	32.6	425	3440	0.0729	0.0625	0.556	0.001	0.001	0.001
Maximum i	1060	3980	3370	631	5080	73700	1940	1420	306	188	67	300
Median i	25.9	350	14.4	50.1	773	6370	4.9	2.2	4.02	2.94	4.76	5
Mean i	95.8	547	214	117	1140	9960	137	96.8	25.9	17	9.52	27
MAD i	10.8	15	5.31	6.4	44	660	3.49	1.46	1.73	2.43	3.81	3.58
IQR i	26.5	33.5	13.3	31.9	93.5	1280	7.95	4.91	3.43	5.05	6.77	8.3
Robust CV% i	76	7	68	47	9	15	120	165	63	128	105	123
Median f	19	350	13.5	49.3	773	6350	2.29	0.935	3.45	1.6	4.14	4.16
Mean f	21.4	348	13.8	48.2	765	6430	3.22	1.08	3.69	2.49	5.09	5.97
MAD f	6.9	5	4.12	4.65	35	555	1.86	0.245	1.38	1.1	3.11	3.11
IQR f	11.2	9.5	8.34	6.6	59	1090	4.63	0.335	2.77	3.83	5.65	8.3
Robust CV% f	44	2	46	10	6	13	150	27	60	177	101	148
Outliers	3	6	3	5	6	3	3	4	2	2	1	1
Stragglers	1	2	0	0	0	0	1	3	0	1	0	0

2018: Nitrogen (%N)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	34	34	34	34	33	33	33	32	35	35	35	35
Minimum i	3.19	1.37	3.09	2.42	2.41	1.15	0.79	1.42	2.85	1.7	2.21	0.758
Maximum i	4.09	2.34	3.69	3.85	3.42	2.93	2.98	2.88	4.14	4.29	2.74	1.21
Median i	3.53	1.77	3.37	2.73	2.71	2.75	1.03	1.64	3.96	1.87	2.47	0.863
Mean i	3.49	1.78	3.35	2.75	2.7	2.66	1.1	1.66	3.93	1.94	2.45	0.873
MAD i	0.08	0.04	0.09	0.09	0.07	0.12	0.02	0.045	0.09	0.04	0.04	0.03
IQR i	0.195	0.0775	0.175	0.168	0.18	0.24	0.03	0.085	0.17	0.07	0.08	0.0605
Robust CV% i	4	3	4	5	5	6	2	4	3	3	2	5
Median f	3.53	1.77	3.36	2.72	2.72	2.77	1.03	1.64	3.98	1.86	2.48	0.863
Mean f	3.5	1.77	3.34	2.71	2.71	2.75	1.03	1.63	3.97	1.86	2.47	0.865
MAD f	0.07	0.03	0.09	0.065	0.06	0.09	0.01	0.04	0.08	0.02	0.03	0.03
IQR f	0.15	0.055	0.16	0.125	0.12	0.17	0.02	0.0725	0.17	0.03	0.06	0.055
Robust CV% f	3	2	4	3	3	5	1	3	3	1	2	5
Outliers	4	6	1	2	2	3	7	3	2	4	4	3
Stragglers	1	2	0	2	5	2	3	2	0	8	3	1

2018: Phosphorus (%P)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	37	37	37	37	36	36	36	36	37	37	37	37
Minimum i	0.245	0.273	0.217	0.39	0.27	0.397	0.0677	0.26	0.24	0.24	0.129	0.14
Maximum i	0.314	0.36	0.292	0.587	0.397	0.809	0.187	0.396	0.31	0.3	0.16	0.19
Median i	0.286	0.338	0.26	0.467	0.35	0.689	0.086	0.34	0.281	0.273	0.148	0.17
Mean i	0.285	0.334	0.258	0.466	0.351	0.682	0.0881	0.338	0.28	0.272	0.147	0.169
MAD i	0.009	0.008	0.008	0.016	0.0145	0.041	0.00325	0.0155	0.012	0.011	0.005	0.006
IQR i	0.015	0.016	0.019	0.036	0.0263	0.083	0.00718	0.0293	0.023	0.021	0.011	0.011
Robust CV% i	4	4	5	6	6	9	6	6	6	6	6	5
Median f	0.287	0.342	0.26	0.467	0.35	0.698	0.086	0.341	0.284	0.275	0.148	0.17
Mean f	0.287	0.341	0.26	0.466	0.354	0.698	0.0859	0.342	0.282	0.275	0.148	0.169
MAD f	0.007	0.0075	0.006	0.0155	0.01	0.042	0.00305	0.013	0.01	0.01	0.005	0.006
IQR f	0.014	0.0133	0.013	0.0295	0.025	0.08	0.00628	0.0268	0.021	0.0178	0.0095	0.011
Robust CV% f	4	3	4	5	5	8	5	6	5	5	5	5
Outliers	1	6	6	3	1	2	4	4	1	0	1	2
Stragglers	5	1	2	0	2	1	0	0	1	3	1	0

2018: Potassium (%K)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	38	38	38	38	36	36	36	36	38	38	38	38
Minimum i	1.96	1.73	0.93	0.589	1.74	5.58	0.788	0.18	0.571	0.232	0.576	1.25
Maximum i	3	2.64	1.73	1.05	2.45	9.16	5.25	1.95	1.07	0.45	1.06	1.98
Median i	2.45	2.18	1.38	0.834	2.14	7.7	0.926	0.244	0.876	0.352	0.97	1.62
Mean i	2.45	2.17	1.38	0.831	2.14	7.65	1.04	0.291	0.88	0.351	0.945	1.62
MAD i	0.125	0.08	0.055	0.0365	0.1	0.4	0.0325	0.0215	0.035	0.021	0.0445	0.06
IQR i	0.233	0.155	0.105	0.0648	0.215	0.748	0.0613	0.039	0.0668	0.036	0.0805	0.108
Robust CV% i	7	5	6	6	7	7	5	12	6	8	6	5
Median f	2.46	2.19	1.38	0.84	2.14	7.82	0.926	0.244	0.873	0.352	0.976	1.62
Mean f	2.46	2.18	1.39	0.845	2.15	7.77	0.928	0.244	0.875	0.354	0.968	1.61
MAD f	0.09	0.07	0.03	0.029	0.1	0.385	0.026	0.0155	0.024	0.018	0.047	0.04
IQR f	0.17	0.14	0.08	0.0555	0.2	0.668	0.0553	0.031	0.0485	0.03	0.0745	0.085
Robust CV% f	5	5	4	5	7	6	4	9	4	6	6	4
Outliers	3	5	6	6	1	4	5	2	5	3	3	5
Stragglers	2	0	3	1	0	0	1	2	2	2	0	2

2018: Selenium (µg Se/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	18	18	17	18	20	20	20	19	18	18	18	18
Minimum i	52.4	57.4	10.2	14.6	15	3.3	19.1	23.1	600	433	49.8	28.5
Maximum i	1060	1120	737	727	3540	6010	23200	1080	4570	4390	10500	1460
Median i	100	90	37.7	54.8	54.9	40.5	35.5	141	1380	831	97	77.9
Mean i	186	188	115	117	304	537	1450	194	1470	994	688	154
MAD i	8.4	11.7	11.1	6.1	5.3	8.8	6	15	30	30	7	5.4
IQR i	61.9	61.9	27.1	16.5	12	348	156	38	103	66.8	35	10.5
Robust CV% i	46	51	53	22	16	636	325	20	6	6	27	10
Median f	100	90	37.7	54.8	54.9	40.5	35.5	141	1380	831	97	77.9
Mean f	95.8	93.4	34.8	56.1	54.8	41	33.7	147	1390	835	93.5	76.7
MAD f	8.4	11.7	11.1	6.1	5.3	8.8	6	15	30	30	7	5.4
IQR f	17.6	14.7	25.3	8.7	9.7	12.9	14.6	29.5	60	54.8	15.7	7.25
Robust CV% f	13	12	50	12	13	24	31	16	3	5	12	7
Outliers	7	5	3	6	5	11	9	5	5	4	8	3
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2018: Silicon (%Si) NOT CERTIFIED

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	8	7	8	8	8	8	8	8	8	8	8	8
Minimum i	0.01	0.0104	0.00622	0.0007	0.003	0.004	0.011	0.003	0.0029	0.00105	0.014	0.0124
Maximum i	0.19	3.12	0.048	0.0269	0.017	0.025	0.198	0.017	0.0237	0.0446	0.157	1.47
Median i	0.0449	0.133	0.017	0.00262	0.00542	0.0078	0.0753	0.00689	0.00855	0.0196	0.0478	0.111
Mean i	0.0763	0.517	0.0214	0.00718	0.00796	0.0104	0.0904	0.0084	0.0115	0.0205	0.0668	0.284
MAD i	0.0342	0.105	0.00475	0.00191	0.00242	0.0023	0.04	0.00389	0.00489	0.0075	0.0223	0.0369
IQR i	0.1	0.136	0.0114	0.0101	0.00787	0.00545	0.0911	0.00946	0.0149	0.0122	0.0571	0.0994
Robust CV% i	165	76	50	285	108	52	90	102	130	46	88	66
Median f	0.0449	0.0808	0.0148	0.000733	0.00489	0.00664	0.0753	0.00689	0.00855	0.0191	0.0327	0.0895
Mean f	0.0763	0.0831	0.014	0.000874	0.00667	0.00828	0.0904	0.0084	0.0115	0.017	0.0411	0.0895
MAD f	0.0342	0.0677	0.00335	0.0000245	0.00189	0.00232	0.04	0.00389	0.00489	0.0079	0.0107	0.0244
IQR f	0.1	0.128	0.00573	0.000182	0.00506	0.00356	0.0911	0.00946	0.0149	0.011	0.0246	0.0413
Robust CV% f	165	117	29	18	77	40	90	102	130	43	56	34
Outliers	0	1	2	2	1	1	0	0	0	0	1	1
Stragglers	0	0	0	3	0	0	0	0	0	1	2	1

2018: Sodium (mg Na/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	36	36	35	34	35	35	35	32	31	33	32	34
Minimum i	0.119	0.481	0.0097	0.00234	1220	688	105	2	0.737	6.65	10	36.7
Maximum i	1830	5400	563	424	2700	11000	331	100	320	240	300	322
Median i	1180	4600	90	9.4	1940	8600	196	10.8	12.2	89.3	43.2	206
Mean i	1120	4490	110	35.1	1950	8500	203	20.8	32	98.6	62.4	209
MAD i	50	225	10	3.82	100	630	26	5.67	5.4	8.3	7.25	15.5
IQR i	100	375	24.5	7.42	185	1240	50.5	14.2	18	17.4	27.4	29.8
Robust CV% i	6	6	20	59	7	11	19	98	109	14	47	11
Median f	1180	4590	87.5	6.7	1950	8600	185	8.65	8.89	86.5	39.8	206
Mean f	1180	4620	88.7	7.46	1970	8660	188	9.05	9.53	87.7	40.2	211
MAD f	40	140	7.55	3.3	90	620	15	3.6	1.11	4.9	3.15	12.5
IQR f	80	260	15.7	4.79	135	1190	39.3	7.43	2.82	8.4	5.58	26
Robust CV% f	5	4	13	53	5	10	16	64	24	7	10	9
Outliers	7	4	6	5	5	2	4	6	7	7	9	6
Stragglers	0	3	1	2	0	0	3	2	7	1	3	0

2018: Sulfur (%S)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	32	32	32	32	33	33	33	33	31	31	31	31
Minimum i	0.16	0.205	0.221	0.147	0.448	0.206	0.146	0.106	0.101	0.07	0.137	0.0957
Maximum i	7.64	0.316	0.35	0.27	0.873	0.526	0.52	0.47	0.205	0.15	0.278	1.76
Median i	0.183	0.246	0.258	0.169	0.717	0.275	0.191	0.14	0.183	0.132	0.242	0.114
Mean i	0.417	0.247	0.26	0.174	0.717	0.28	0.206	0.147	0.179	0.128	0.235	0.166
MAD i	0.0075	0.011	0.0125	0.0115	0.04	0.017	0.008	0.01	0.009	0.007	0.012	0.004
IQR i	0.0138	0.0218	0.0265	0.0225	0.083	0.032	0.017	0.015	0.0175	0.0135	0.0225	0.009
Robust CV% i	6	7	8	10	9	9	7	8	7	8	7	6
Median f	0.181	0.246	0.258	0.168	0.717	0.275	0.191	0.138	0.184	0.132	0.243	0.114
Mean f	0.181	0.246	0.257	0.167	0.723	0.275	0.191	0.136	0.185	0.132	0.243	0.115
MAD f	0.008	0.0095	0.012	0.009	0.031	0.015	0.006	0.008	0.0045	0.004	0.007	0.003
IQR f	0.014	0.0188	0.0275	0.0178	0.072	0.029	0.011	0.014	0.00975	0.0075	0.011	0.0055
Robust CV% f	6	6	8	8	7	8	4	8	4	4	3	4
Outliers	3	3	1	2	5	3	6	3	4	2	3	4
Stragglers	0	1	0	2	1	1	2	1	3	5	3	4

2018: Zinc (mg Zn/kg)

Statistical parameters	Plant sample identification and values											
	February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
	ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
No of results	36	36	36	36	35	35	35	35	36	36	36	36
Minimum i	12.5	36.8	92.4	19.4	21.3	9.02	11.3	17.3	31.2	15.7	24.3	28.4
Maximum i	49.3	103	194	56.9	30.3	23.9	17.2	24.6	42.5	26.5	127	38.7
Median i	30.2	51.4	112	35.8	25.5	20.6	13.8	20.8	37.5	18.9	29.3	33.8
Mean i	29.9	51.9	113	35.5	25.6	20.4	13.9	20.8	37.5	19.2	31.6	33.5
MAD i	1.35	2.7	5.5	1.8	1.3	1.3	0.8	1.4	1.4	0.85	0.75	1.25
IQR i	3.15	4.93	12.8	3.68	2.55	2.9	1.45	2.55	2.55	1.78	1.55	2.5
Robust CV% i	8	7	8	8	7	10	8	9	5	7	4	5
Median f	30.3	51.5	112	36	25.4	20.8	13.7	20.8	37.5	18.9	29.4	33.8
Mean f	29.9	51.3	111	35.7	25.4	20.7	13.8	20.8	37.6	18.9	29.2	33.5
MAD f	1	1.6	5	0.65	1.15	1.45	0.8	1.4	1	0.75	0.55	1.2
IQR f	2	2.9	9.75	1.28	2.23	2.93	1.45	2.55	2	1.43	1.13	2.28
Robust CV% f	5	4	6	3	7	10	8	9	4	6	3	5
Outliers	6	3	4	3	1	1	1	0	3	4	6	2
Stragglers	3	3	0	9	2	0	0	0	4	2	2	0

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. However, a few observations are made here.

The grand median robust % CVs across the 12 samples by test in 2018, after the removal of "outliers" and "stragglers", ranged from 1.5 (for C, also the lowest in 2017) to 45.0 (for NO_3-N, almost 2 times more than for this test in 2017). Figure 4.1 presents grand median robust %CVs for program years 2018 and 2017.For many tests, there was little relative difference between robust % CVs in the two years, but the CVs for Al, Cd, Co, Cu, Pb and Se were lower in 2018 than 2017, while the opposite was the case for Cl and especially NO3-N.

Robust %CV can be influenced by analyte concentrations. However, for the 2018 Plant Program Year, only the robust %CVs for Cl, Pb and Mo were influenced by analyte concentrations to any extent (highest %CVs at lowest concentrations), with coefficients of determination (r^2) for separate power functions of 0.51, 0.43 and 0.30 respectively.

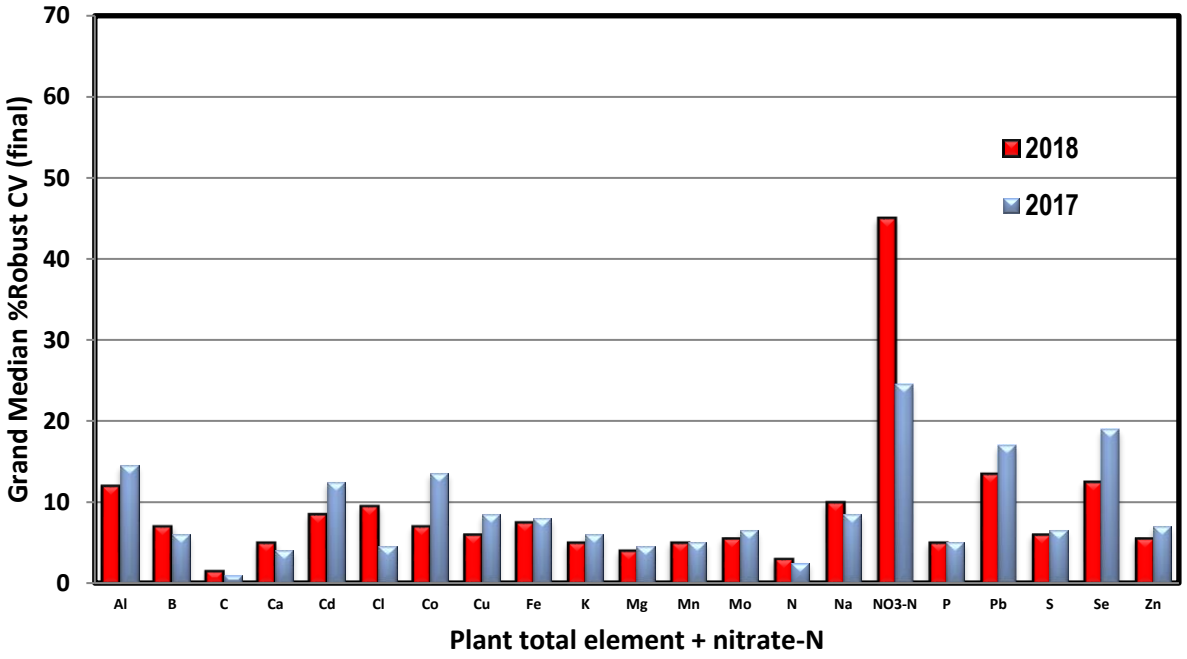


Figure 4.1. Grand median robust %CVs (final) for plant program years 2018 and 2017, excluding plant Si which was not assessed in 2017 and not certified in 2018.

The sequence for test samples with lowest (best at 4.0%) to highest (worst at 9.0%) grand median %CVs across all 22 tests was (ASP): 1802-2<1808-1<1808-4<[1802-1,1802-3,1805-1,1808-2,1808-3]< 1805-3 < 1802-4 < [1805-2, 1805-4]. Collectively, the program grand median %CV for the 12 test samples was 6.0% (the same as in 2017).

Median concentrations of the elements essential for plant growth (Table1) were generally within the bounds expected of healthy plants, with the exception of potassium (grand median of 1.2%) and nitrate-N, (grand median of 8.8 mg/kg) which were below typical plant concentrations. The median nitrate-N value in particular was well below concentrations found in leaf petioles which are often a target sample for nitrate-N. However, sample 1805-2 had a final median nitrate-N concentration of 6350 mg/kg, which provided a test of performance at an acceptably high concentration. The presence of very low concentrations of nitrate-N in all but one of the 12 test samples probably contributed to the high %CV for this test.

Across all 7428 reported plant test results in 2018, 14.4% were statistically assessed to be "outliers" and 4.4% were assessed to be "stragglers", which were similar to the corresponding percentages in 2017 (15.5% 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 7.0% (for N) to 37.7% (Co), while those for "stragglers" ranged from zero% (Cd, Co, Mo, Se) to 14.5% (N). As noted in the 2017 and 2016 reports, 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 laboratories still using ICPOES for these tests would be likely to identify as outliers rather than as stragglers. Moreover, for the 2018 program, it is unlikely that any of the five to eight laboratories providing ICPOES results (see Table 4) will get certification for any of the five ultra-trace elements (Cd, Co, Mo, Pb and Se. These five ultra-trace elements have been included in the PlantChek program since at least 2004/05. However in 2010, the LPC made the decision to base acceptance levels, for all five tests, on ICPMS data and exclude ICPOES data. It was considered ICPOES did not have sufficient sensitivity to provide accurate results at such low concentrations that occur naturally in plants. Over the last four years it is encouraging to see what appears to be five more laboratories providing ICPMS results (Table 4). However, there is still a significant number of laboratories providing ICPOES results. Overall, more laboratories are now providing results for these tests and there is consistent improvement in precision as hoped.

Table 4. The number of laboratories reporting plant ultra-trace elements (Cd, Co, Mo, Pb and Se) using either Inductively Coupled Plasma Optical Emission Spectrometry (ICPOES) or Inductively Coupled Plasma Mass Spectrometry (ICPMS), along with precision estimates for three time periods over eight years (2010 - 2018).

	2010/2011			2014/2015			2018		
Analyte	ICPOES	ICPMS	CV%#	ICPOES	ICPMS	CV%#	ICPOES	ICPMS	CV%#
Cd	5	10	10.5	6	8	14.5	7	15	8.5
Co	10	11	15.0	9	11	8.0	7	16	5.5
Mo	13	11	9.0	9	11	7.0	8	16	6.0
Pb	6	9	22.0	7	8	15.5	5	13	13.5
Se	7	9	18.0	5	11	16.0	6	16	12.5

grand median robust CV% covering 3 rounds of 4 plant samples per round over a one-year period. Acceptance levels are based on ICPMS data only, and robust CV's shown are final CV's after the removal of outliers and stragglers.

Appendix 1: List of laboratories (including contact details at the time) who participated in ASPAC's Plant ILPP in 2018, arranged by country

Name (position)	*Facility*	*Street and/or Postal Address*	*Country*	*Email*
Stephanie King (Administration)	Aglab Services	32 Wattle Avenue, Moolap, Victoria, 3220	Australia	service@agmin.com.au
Stephanie King (Administration)	Agrilab	32 Wattle Avenue, Moolap, Victoria, 3220	Australia	service@agmin.com.au
Craig Newman (Laboratory Manager)	AgVita Analytical	4 Thompson's Road, Latrobe, TAS 7307 PO Box 188, Devonport, TAS 7310	Australia	cnewman@agvita.com.au
Subashini Munasinghe (Strategic Project and Technical Manager)	Analytical Laboratories and Technical Services Australia (ALTSA)	162 New Guinea Road, Robinvale, Victoria, 3549	Australia	suba@dualchelate.com
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
Peter Keating (Managing Director)	Bioscience	488 Nicholson Rd, Forrestdale, WA PO Box 5466, Canning Vale South , WA	Australia	bioscience@biosciencewa.com
Hannah Burton (Team Leader - Environmental Chemistry)	ChemCentre (WA)	Resources & Chem Precinct Centre, Conlon, WA 6102 PO Box 1250 Bentley Delivery Centre, WA 6983	Australia	ECLabManager@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
John Gouzos (Manager, Analytical Services)	CSIRO Land and Water, Adelaide	Entrance 4 Waite Rd, Urrbrae, SA 5064 Private Bag 2, Glen Osmond, SA 5064	Australia	John.gouzos@csiro.au
George Croatto (Senior Research Scientist)	DEDJTR Macleod Chemistry Laboratory	TER 4, Ernest Jones Dr, Macleod, VIC 3085	Australia	George.Croatto@ecodev.vic.gov.au
Rob DeHayr (Manager)	Dept of Environment and Science – Chemistry Centre	Block A - Level 3, 41 Boggo Road, Joe Baker Street, Loading Dock 3, Dutton Park, QLD 4102 Business Unit (ESP), GPO Box 2454, Brisbane, QLD 4001	Australia	rob.dehayr@des.qld.gov.au
Clarence Mercer (Technical Officer)	DPI Tamworth Soil Chemistry	4 Marsden Park Road, Calala, NSW, 2340	Australia	clarence.mercer@dpi.nsw.gov.au
Michael Smirk (Analytical Chemist)	Earth and Environment Analysis Laboratory (UWA)	University of Western Australia, 35 Stirling Highway, Crawley, WA 6009	Australia	Michael.Smirk@uwa.edu.au
Stephanie Cameron (Operations Manager)	East West EnviroAg	82 Plain St, Tamworth, NSW 2340	Australia	Stephanie.c@eastwestonline.com.au
Graham Lancaster (Laboratory Manager)	Environmental Analysis Laboratory	University Store, Military Road, East Lismore, NSW 2480 PO Box 5125, East Lismore, NSW	Australia	Graham.Lancaster@scu.edu.au
Kellie Taylor (Lab Manager)	EP Analysis	26 Railway Tce, Cummins, SA 5631 PO Box 400, Cummins SA 5631	Australia	info@epanalysis.com.au

Name (position)	*Facility*	*Street and/or Postal Address*	*Country*	*Email*
James Stangoulis (Associate Professor)	Flinders University Plant Nutrition	Science and Engineering Store, Car Park 9, Physical Sciences Rd, Bedford Park, Adelaide, South Australia 5042	Australia	james.stangoulis@flinders.edu.au
Jack Milbank (General Manager)	Hortus Technical Services Pty Ltd	1/5 Scotland Street, Bundaberg, Queensland, 4670 Locked Bag 3901, Bundaberg, Queensland	Australia	techservices@hortus.net.au
Jamie Woodward (Laboratory Manager)	Marine and Freshwater Research Laboratory	Loading Zone 1, Building 340, Level 3, Room 3.026, Murdoch University, 90 South Street, Murdoch 6150	Australia	j.woodward@murdoch.edu.au
Rabeya Akter (Senior Technical Officer)	Mark Wainwright Analytical Centre UNSW - The University of New South Wales	Room B36 Chemical Science Building (F10), High Street, Kensington, NSW 2052	Australia	r.akter@unsw.edu.au
Stacey Hawkins (Supervisor)	MPL Laboratories	16 Hayden Court, Myaree, Western Australia, 6154	Australia	shawkins@mpl.com.au
Sue Foster (Quality Assurance Officer)	NSW Department of Primary Industries	1243 Brunxner Hwy, Wollongbar, NSW 2477	Australia	Sue.foster@dpi.nsw.gov.au
John Morritt (Lab Supervisor)	Nutri Analytical – Landmark Operations	Unit 2/34 Juna Drive, Malaga, WA, 6090	Australia	john.morritt@landmark.com.au
Paul Kennelly (Laboratory Manager)	Nutrient Advantage Laboratory Services	8 South Rd, Werribee, VIC 3030	Australia	Paul.Kennelly@incitecpivot.com.au
Sarah Houston (Laboratory Manager)	Nutri-Lab Pty Ltd	Lot 14 Troy Drive, Goondiwindi, QLD 4390 PO Box 782, Goondiwindi, QLD 4390	Australia	sarah@nutrilab.com.au
Rob Cirocco (Manager)	Phosyn Analytical	1/60 Junction Road, Andrews, QLD 4220 P.O.Box 2594, Burleigh MDC, QLD 4220	Australia	rcirocco@phosyn.com.au
Lisa Wittick (Laboratory Manager)	School of Ecosystem and Forest Science**	Water Street, Creswick, VIC 3363	Australia	lisa.wittick@unimelb.edu.au
Leanne Orsmond (Quality Coordinator)	SGS Environmental Services – PortsmithCarins	Unit 2, 58 Comport Street, Portsmith, Cairns, QLD 4870	Australia	Leanne.Orsmond@sgs.com
Zofia Ostatek-Boczynski (Analytical Chemist)	Sugar Research Australia	51 Meiers Road, Indooroopilly PO Box 86, Indooroopilly	Australia	zostatek-boczynski@sugarresearch.com.au
Edward Mikail	SWEP Pty Ltd Analytical Laboratories	45-47 / 174 Bridge Rd, Keysborough, VIC 3173 PO Box 583, Noble Park, VIC 3174	Australia	tedmikhail@swep.com.au
My Chi Mai (Analytical Services Chemist)	Sydney Environmental and Soil Laboratory	16 Chilvers Rd, Thornleigh, NSW 2120 PO Box 357, Pennant Hills, NSW 1715	Australia	mychi@sesl.com.au
Michael Hall (Instrument Analyst)	TrACEES – University of Melbourne	500 Yarra Blvd, Richmond, VIC 3121	Australia	michael.hall@unimelb.edu.au
Jyothi Bhandari (Laboratory Manager)	Tricor Analytical Lab Pty Ltd**	2 Greentek Court, Koorlong, VIC 3501	Australia	jbhandari@nu-edge.com.au
Nana Satake (Acting Manager)	University of Queensland - Analytical Services, Agriculture & Food Sciences	S327 (Reception) – Building 83 (Hartley Teakle), School of Agriculture and Food Sciences, University of Queensland, St. Lucia, Brisbane 4072	Australia	n.satake@uq.edu.au

Name (position)	*Facility*	*Street and/or Postal Address*	*Country*	*Email*
Steve Byrne (Laboratory Manager)	Vintessential Laboratories**	32 Brasser Avenue, Dromana, VIC 3936 PO Box 2244, Dromana, VIC 3936	Australia	lab-vic@vintessential.com.au
Tawake Ducivaki (Senior Research Officer)	Fiji Agricultural Chemistry Laboratory	Koronivia Research Station, Nausori PO Box 77, Nausori	Fiji	tducivaki@ymail.com
Jose Carlos Leppe (Soil Analyst)	Analab – Asociacion Nacional Del Café	5TA. Calle 0-50 Zona 14, Edificio Del Café, Sotano 1, Analab	Guatemala	jose.cll@anacafe.org
Brent Miller (Team Leader Agriculture)	Eurofins NZ Laboratory Services, Auckland	35 O'Rorke Rd, Penrose, Auckland PO Box 12545, Penrose, Auckland 1642	New Zealand	Brentmiller@eurofins.co.nz
Wendy Homewood (QA Officer Ag Division)	Hill Laboratories	1 Clyde St, Hamilton Private Bag 3205, Hamilton 3240	New Zealand	wendy.homewood@hill-labs.co.nz
Ngaire Foster (Laboratory Manager)	Landcare Research NZ Ltd	Cnr University Ave and Riddett Rd, Massey University Campus, Palmerston North Private Bag 11052, Palmerston North	New Zealand	fostern@landcareresearch.co.nz
Roger Cresswell (Analytical Services Manager)	Lincoln University	Soil & Physical Sciences, C/o Central Stores, Farm Road, Lincoln, Lincoln	New Zealand	roger.cresswell@lincoln.ac.nz
Adina Vlad (Analyst)	Ravensdown Ltd (ARL)	890 Waitangi Rd, Awatoto, Napier PO Box 989, Napier	New Zealand	aev@arllab.co.nz
Kendra Newick (Laboratory Analyst)	Veritec	49 Sala Street, Rotorua Private Bag 3020, Rotorua	New Zealand	kendra.newick@scionresearch.com
Joseph Kerage (Principle Chemist)	NARI Chemistry Laboratory	Boroko 111, National Capital District, Papua New Guinea	Papua New Guinea	joseph.kerage@nari.org.pg

Appendix 2: Homogeneity data and statistical assessments* for Total Plant N% (Dumas N) on the 12 test plant samples in 2018.

Sample name		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
Sub-sample													
1	Rep 1	3.45	1.72	3.33	2.57	2.64	2.75	1.00	1.51	3.84	1.76	2.35	0.80
	Rep 2	3.43	1.72	3.31	2.62	2.63	2.89	1.09	1.52	3.84	1.78	2.37	0.80
2	Rep 1	3.40	1.71	3.32	2.58	2.67	2.88	1.02	1.52	3.84	1.76	2.38	0.80
	Rep 2	3.42	1.70	3.31	2.60	2.67	2.76	1.08	1.54	3.82	1.78	2.38	0.80
3	Rep 1	3.43	1.71	3.29	2.61	2.66	2.79	1.03	1.54	3.84	1.77	2.35	0.80
	Rep 2	3.45	1.71	3.30	2.62	2.67	2.74	1.01	1.53	3.84	1.78	2.35	0.79
4	Rep 1	3.45	1.71	3.30	2.58	2.65	2.92	1.06	1.53	3.86	1.80	2.36	0.79
	Rep 2	3.44	1.71	3.30	2.58	2.64	2.76	1.01	1.52	3.82	1.81	2.37	0.80
5	Rep 1	3.43	1.73	3.30	2.63	2.65	2.82	1.06	1.55	3.82	1.79	2.51	0.79
	Rep 2	3.46	1.71	3.29	2.60	2.65	2.66	1.12	1.52	3.82	1.79	2.36	0.79
6	Rep 1	3.42	1.70	3.33	2.56	2.66	2.70	1.06	1.52	3.84	1.78	2.36	0.80
	Rep 2	3.41	1.70	3.30	2.63	2.67	2.79	1.02	1.52	3.82	1.78	2.34	0.79
7	Rep 1	3.44	1.72	3.31	2.58	2.65	2.84	1.09	1.52	3.85	1.80	2.35	0.79
	Rep 2	3.47	1.72	3.30	2.64	2.68	2.85	1.12	1.52	3.83	1.76	2.33	0.80
8	Rep 1	3.45	1.73	3.32	2.60	2.65	2.71	1.01	1.53	3.84	1.79	2.34	0.80
	Rep 2	3.45	1.71	3.32	2.64	2.67	2.73	1.08	1.53	3.84	1.78	2.36	0.80
9	Rep 1	3.46	1.71	3.32	2.57	2.66	2.74	1.09	1.53	3.85	1.78	2.36	0.80
	Rep 2	3.44	1.71	3.31	2.59	2.65	2.82	1.01	1.52	3.82	1.78	2.34	0.80
10	Rep 1	3.45	1.71	3.32	2.63	2.65	2.79	1.05	1.53	3.84	1.77	2.36	0.80
	Rep 2	3.43	1.71	3.32	2.60	2.65	2.73	1.07	1.52	3.82	1.77	2.33	0.80
Mean		3.44	1.71	3.31	2.60	2.66	2.78	1.05	1.53	3.83	1.78	2.36	0.80
Analytical SD		0.0002	0.00003	0.0001	0.00080	0.0001	0.0055	0.0016	0.0001	0.0002	0.0001	0.0012	0.00001
Sampling SD		0.0001	0.00005	0.0001	0	0.0001	0	0	0	0	0.00005	0.0002	0.000003
SD proficiency data		0.0939	0.0423	0.1239	0.0895	0.1068	0.1273	0.0200	0.0558	0.1040	0.0277	0.0446	0.0391
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" (††) and "stragglers" (†) 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- μ)/f@] (called the "ASPAC Score" for convenience)>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" (††). 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" (†).

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 2017.

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 †† and †, 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_2SO_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_2SO_4	AF
Extraction with acid(s)	BA
Extraction with water	BB
Finely-divided dry sample	CA
Microwave digestion - closed system with HF, and final medium H_2SO_4	DA
Microwave digestion - closed system with HF, and final medium HNO_3 and/or HCl	DB
Microwave digestion - closed system with HF, and final medium $HClO_4$	DC
Microwave digestion - closed system without HF, and final medium H_2SO_4	DD
Microwave digestion - closed system without HF, and final medium HNO_3 and/or HCl	DE
Microwave digestion - closed system without HF, and final medium HClO4	DF
Microwave digestion - open system with HF, and final medium H_2SO_4	DG
Microwave digestion - open system with HF, and final medium HNO_3 and/or HCl	DH
Microwave digestion in open system with HF, and final medium $HClO_4$	DI
Microwave digestion - open system with HF, and final medium HNO_3 / peroxide	DJ
Microwave digestion - open system without HF, and final medium H_2SO_4	DK
Microwave digestion - open system without HF, and final medium HNO_3 and /or HCl	DL
Microwave digestion - open system without HF, and final medium $HClO_4$	DM
Microwave digestion - open system without HF,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 with HF, and final medium H_2SO_4	GA
Wet digestion - open system with HF, and final medium HNO_3 and /or HCl	GB
Wet digestion - open system with HF, and final medium $HClO_4$	GC
Wet digestion - open system with HF, and final medium HNO_3 / peroxide	GD
Wet digestion - open system without HF, and final medium H_2SO_4 (includes Kjeldahl – not quantitative for NO_3)	GE
Wet digestion - open system without HF, and final medium H_2SO_4 (includes Kjeldahl – quantitative for NO_3)	GF
Wet digestion - open system without HF, and final medium HNO_3 and /or HCl	GG
Wet digestion - open system without HF, and final medium $HClO_4$	GH
Wet digestion - open system without HF,and final medium HNO_3 / peroxide	GI
Wet digestion - open system without HF —diacid (HNO_3,$HClO_4$)	GJ
Wet digestion - open system without HF — triacid (HNO_3,H_2SO_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_2O-acetylene	14
AAS-Flame with deuterium background correction, using N_2O-acetylene	15
AAS-Flame with Zeeman background correction, using N_2O-acetylene	16
AAS-Flame with pulsed hollow cathode lamp background correction, using N_2O-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 2018: Aluminium (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
22	DE-23	133	3470 †	1230	4.42	18.6	48.9	8270	25.5	14.2	2.63	30.1	117
8888	DE-23	136 †	3540 †	1120		35.9 ††	56.5	8230	24.1	13.7		31.9	132
10156	GI-23	93.3	3400	1220	9.9	18.8	45.3	6990	26.4	24.6 ††	6.07 ††	27.9	91.3
10173	DN-24	112	3190	1050	1.69	24.1	61.5	7330	19.3	14.2	1.44	30.2	115
11079	DE-23	109	3340	1170		37.6 ††	69.3 ††	77.9 ††	39 ††	13.5	2.06	30.4	108
21043	GJ-23	94.6	3200	992	6.66	21.8	53.9	7830	21.1	17.6	4.29	31.9	112
21088	DE-23	118	3600 ††	1160	5.09	31.9 †	53.1	9030	23.2	17.5	6.02 ††	32.3	133
21100	DE-24	57.5 ††	1610 ††	1090	6.29	14.3	41.5	8250	13.6	15.4	4.48	22.7	43.2 ††
21138	DE-23	129	3270	1160		20.9	50.6	8100	17.8	15		29	108
21178	DE-23	94.3	3070	1060	3.7	16.2	43.8	6670	11.4	12	1.4	26	92
21229	GI-23	102	3140	1100	11.6	20.3	40.9	7890	17	11.6	2.28	25	92.7
21230	DE-23	116	3310	1060	11.7	15.8	37.8	6830	10.7	11	1.45	22.9	88.2
21232	DE-23	115	3190	1240	10.4	15.4	49.6	7520	17.5	14.6	8.86 ††	129 ††	28.3 ††
50004	DE-23	104	2790 ††	933	3.13	19.9	48.8	8100	15.6	15.2	2	24.9	96.4
50005	GJ-23	101	3210	1030	5.79	22.5	58.6	7080	23.7	14.6	3.51	33.4	118
50011	DE-23	111	3260	1200	3.08	21.8	41.9	8920	17.9	13.9	3.19	25.9	103
50012	DN-23	106	2860 †	1170	3.66	22.1	47.7	7240	17.9	16	1.92	29.6	94.4
50014	DE-23	133	3280	1130	4.82	22.4	53.3	7600	15.3	15.7	2.62	33.3	93.7
50017	DE-23	108	3010	1030	2.23	27.7	58.3	8420	19.2	10.7	2.24	29.4	106
50018	DE-23	89.9	3120	1050	1.61	19.9	47.7	8040	16.8	12.8	5.32 ††	27.6	93.2
50020	GI-23	59.9 ††	2340 ††	1010	1.65	23	44.8	8360	23.2	12.8		25.2	68.5
50024	GJ-23	112	3200	1120	1.7	22.7	46.3	7930	19.5	13.6	0.33	35.1	107
50027	DN-23	106	3180	1010	3	23	55.5	7060	13.2	14.6	2.9	30	111
50029	AD-23	93	1240 ††	1100	1.53	12.5 †	22.1 ††	4750 ††	8.07	8.32 ††	1.03	17.3 ††	65.4 †
50037	DE-23	89.6	3130	1050	1.63	19.8	47.6	8030	16.7	12.9	5.3 †	27.8	93.1
52283	GJ-23	172 ††	3190	1000	10.6	42.5 ††	57.4	8080	14.6	13.4	2.57	29.6	92.5
52491	GI-23	50 ††	2230 ††	901	1	13 †	49	7160	21	7.42 ††	0.245	16.8 ††	36.5 ††
52495	GI-24	75.9 †	3200	1150	6.12	14.2	43.4	7820	10.1	9.81 †	0.776	22.9	62.4 †
52565	DE-23	113	3160	1030	10.5	48.5 ††	49.3	8660	15.2	13.6	2.26	27.3	123

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Boron (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
22	DE-23	26.9	6.97	21.8	14.8	15.2	44.8	50.8	0.525	7.18	1.12	34.8	3.62
8888	DE-23	26.3	6.71	20.8	14.4	16.9	45.8	54	1.67	7.65	1.38	35.9	4.22
10156	GI-23	19.8 ††	2.56 ††	15.6 ††	9.51 ††	15.5	42.1	47.8	2.49 †	20.3 ††	10.2 ††	40.6 ††	11.1 ††
10173	DN-24	22.7	6.32	19	13.5	15.3	49.1	49.3	2.03	6.93	0.63	33.6	3.61
11079	DE-23	25.3	9.13 ††	21.1	13.8	14.9	42.6	46.4	1.3	7.53	1.41	32.4	3.97
20204	GJ-23	31.8 ††	18.4 ††	23.8	25.3 ††	16.1	32.7	48.5	1.19	6.79	0.115 †	28.9	2.72
21043	GJ-23	30.3 ††	14.4 ††	32.3 ††	20.6 ††	19.1 ††	44.6	75.4 ††	11.2 ††	14.5 ††	9.56 ††	40.1 ††	10.9 ††
21088	DE-23	25.2	8.26 ††	20.9	13.7	16.1	46.4	50.4	1.42	9.38 ††	4.92 ††	38.8 †	7.37 ††
21100	DE-24	24.8	6.09	21.5	17.2 †	15.7	46.2	49.6	1	5.47 †	0.319	24 ††	1.86 †
21138	DE-23	25.5	6.26	20.7	14.4	15.1	45.9	44.6		5.5 †		30	2.1 †
21178	DE-24	22.4	8.6 ††	18.6	12.3	15.1	47.1	51.4	1.3	6.6	0.2	38.1	3.4
21229	GI-23	25.9	6.72	23.8	15	15.7	41.3	55.9 ††	0.928	7.31	0.7	34.6	3.47
21230	DE-23	23.5	1.3 ††	18.6	13.1	12.3 ††	35.9	40.9 ††	0.0999 †	5.43 †	0.1 †	30	2.46 †
21232	DE-23	21.4 †	11 ††	22.7	13.1	13.8 ††	38.5	44.9	1.4	5.75 †	0.01 †	30.1	1.54 ††
50004	DE-23	25.1	6.14	20.4	15.1	14.6	44	45.1	1.15	7.4	0.673	32.7	3.14
50005	GJ-23	24	6.62	19.8	13.8	15.3	39.3	47.3	2.06 †	8.4	1.09	32.8	3.67
50008	AD-23	25.4	6.6	21.8	13	16	40.6	49.3	1.66	7.53	0.878	33.9	3.41
50011	DE-23	25.4	6.97	20.6	13.9	14.1 †	39.3	46.7	1.52	7.22	0.908	35.7	3.45
50012	DN-23	25	6.4	20.9	14.5	16	45.3	49.1	7.23 ††	6.6	0.665	34.3	3.12
50014	DE-23	26.3	6.57	21.2	14	15.7	44.8	49.5	0.955	6.5	0.439	33.6	2.92
50017	DE-23	17 ††	7.9 †	12 ††	8.67 ††	15.8	39.9	44.5	0.89	7.26	0.803	33.3	2.95
50018	DE-23	25.5	7.03	21.8	14.7	15.3	42.1	49	2.64 ††	7.18	0.823	35	3.41
50020	GI-23	24.7	6.4	20	13.3	16.4	40.1	47.1	2.25 †	7.23	1.57 †	31.3	3.57
50024	DE-23	25.5	18.1 ††	19.8	19.9 ††	15.6	42.6	47.5	1.12	7.7	0.85	35.2	3.93
50025	GJ-23	29.1 †	10.4 ††	24.6 ††	19.7 ††	16.9	43	51.2	2.9 ††	5.1 ††	1.68 †	32	1.76 ††
50027	DN-23	23.4	18 ††	19.5	12.6	12.9 ††	36.7	41.4 ††	0.8	6.8	1.2	32.6	4
50029	AD-23	28.7	6.55	23.5	17.2 †	15.4	34.6	49.3	0.8	7.82	0.587	35	3.65
50032	DE-30	37.9 ††	46.1 ††	41.7 ††	25.3 ††	15	33	42 †	7.2 ††				
50037	DE-23	25.5	7.1	21.7	14.6	15.3	42.3	49.1	2.61 ††	7.2	0.821	35.1	3.42
52283	GJ-23	16.7 ††	6.84	24.6 ††	20 ††	16.1	46.4	51.8	1.11	7.54	0.99	57.1 ††	3.83
52384	DE-23									4.72 ††	0.72	29.1	1.57 ††
52427	ZZ-23					12.3 ††	33.7	40.2 ††	1.16				
52494	GG-23	23.5	6.69	19.5	12.8	14.3	40.6	46	1.1	6.5	0.8	32.3	3.2
52495	GI-24	26.3	6.64	21.4	15.4	15.9	44	49.3	1.12	6.93	0.717	35	3.27
52565	DE-23	21.6 †	4.05 ††	16.9 ††	9.54 ††	17.8 ††	39	48	2.07 †	11.3 ††	14.6 ††	50.7 ††	13.6 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Cadmium(µg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-24	40.4	41.6	46.1	9.53	41	638 ††	15.4	45.6	3.9	2.11	252	24
10156	GI-23	92.7 ††	107 ††	95.8 ††	74.8 ††								
10173	DN-24	38.9	38.6	43.1	8.33	38.7	512	15.5	41.1	3.27	0.1	277	24.7
11079	DE-23		30 ††				340			13 ††		367 ††	
20204	GJ-23	22 ††	26 ††	15 ††	15	42	380	51 ††	55				
21088	DE-23	50	70 ††	50	10	44.9	377	15.7	45.6	30.9 ††	27.8 ††	263	49.4 ††
21100	DE-24	46.3	49.6	52.1	12.8	37.4	479	15.8	45	8.54	1.14	255	18
21138	DE-24	41.3	39.3	49.8		42.5	412		45.4			220	21
21178	DE-24	39	43	47	11	39	394	13	40	6	2	243	23
21229	GI-24	37.2	40.7	45.9	10.3	38.2	412	16.3	41.6	6.09	4.12	234	21.8
21230	DE-24	38	46	46.7	11.4	39.8	431	15.4	45.4	4.38	2.27	207 ††	21.5
50004	DE-24	41.4	44	50.9	11.5	33.1	364	13.3	35.2	6.57	3.98	225	20.9
50005	GJ-23	41.6	45	51.3	15.4	52.1 ††	288 ††	29.2 ††	42.3	10.3 ††	6.79	213 ††	38.3 ††
50011	DE-24	40.9	42.2	51.6	12.2	39.4	379	17.1	41.2	4.94	3.12	246	23.2
50012	DN-24									5	5	267	19
50014	DE-24	45	55 ††	57	14	42.7	462	21.2 ††	44	5.1	2.4	250	24
50018	DE-24	44.2	45.2	55.4	12.9	45.3	367	14.2	52.9	6.72	6.28	241	23.4
50020	GI-23						143 ††			212 ††	219 ††	354 ††	211 ††
50024	GJ-24	39	47	47	11	36	382	30 ††	42	6.4	3.1	227	20.4
50037	DE-24	44.4	45.3	55.1	12.8	45.1	368	14.3	53	6.69	6.3	242	23.6
52495	GI-24	43.8	38.5	45.1	11	45	445	16.7	49.7	8.58	4.66	249	23.4
52565	DE-23					686 ††	1090 ††	219 ††	965 ††	27.8 ††	33.1 ††	161 ††	23.4

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Calcium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	0.822	0.536	0.609	0.036	0.548	0.921	1.52	0.012	0.065	0.03	1.38	0.328
8888	DE-23	0.781	0.511	0.569	0.033	0.59	0.967	1.64	0.013	0.069	0.033	1.46	0.351
10156	GI-23	0.785	0.524	0.585	0.029	0.51	0.852	1.4	0.018 ††	0.073	0.038 ††	1.33	0.346
10173	DN-24	0.759	0.499	0.553	0.036	0.56	1.02 †	1.49	0.0118	0.065	0.03	1.39	0.344
10181	GF-23	0.789	0.536	0.587	0.036	0.528	0.886	1.49	0.013	0.0699	0.032	1.38	0.342
11079	DE-23	0.897 ††	0.589 ††	0.702 ††	0.044 ††	0.596	0.9	1.6	0.0182 ††	0.075	366 ††	1.46	0.37
20204	GJ-23	0.747	0.514	0.545	0.142 ††	0.54	0.866	1.47	0.07 ††	0.0648	0.0536 ††	1.26	0.27 ††
21043	GJ-23	0.727	0.502	0.541	0.033	0.527	0.885	1.38	0.012	0.067	0.031	1.3	0.325
21088	DE-23	0.728	0.497	0.556	0.033	0.517	0.89	1.45	0.0117	0.0658	0.0313	1.33	0.333
21100	DE-24	0.826	0.569 †	0.615	0.041 ††	0.536	1.03 ††	1.59	0.0119	0.0765 †	0.0313	1.46	0.385 ††
21138	DE-23	0.793	0.504	0.585	0.035	0.558	0.967	1.5	0.0109	0.0638	0.0298	1.34	0.322
21178	DE-23	0.748	0.503	0.561	0.033	0.493	0.807	1.36	0.01	0.061	0.028	1.26	0.32
21190	AD-09	0.835	0.593 ††	0.679 ††	0.169 ††					0.0393 ††	0.00533 ††	1.35	0.301
21193	GJ-11	0.77	0.54	0.61	0.06 ††					0.079 ††	0.0468 ††	1.23	0.338
21229	GI-23	0.757	0.526	0.592	0.033	0.531	0.889	1.62	0.0104	0.0623	0.0291	1.36	0.323
21230	DE-23	0.597 ††	0.409 ††	0.447 ††	0.024 ††	0.395 ††	0.633 ††	1.05 ††	0.00653 ††	0.048 ††	0.022 ††	1.05 ††	0.248 ††
21232	DE-23	0.725	0.49	0.626	0.036	0.51	0.87	1.45	0.01	0.07	0.03	1.3	0.31
21234	GH-09	0.82	0.54	0.61	0.037					0.11 ††	0.05 ††	2.37 ††	0.64 ††
50004	DE-23	0.792	0.449 ††	0.585	0.035	0.556	0.986	1.61	0.0107	0.027 ††	0.026 †	1.34	0.334
50005	GJ-23	0.784	0.505	0.576	0.034	0.496	0.864	1.53	0.0108	0.0614	0.0298	1.4	0.311
50008	GJ-23	0.773	0.519	0.575	0.028 ††	0.543	0.903	1.55	0.012	0.061	0.028	1.28	0.306
50011	DE-23	0.77	0.507	0.576	0.035	0.508	0.818	1.41	0.012	0.068	0.032	1.36	0.327
50012	DN-23	0.772	0.534	0.595	0.034	0.549	0.954	1.44	0.011	0.0649	0.0322	1.4	0.342
50014	DE-23	0.791	0.493	0.57	0.030	0.522	0.902	1.4	0.0105	0.0647	0.0297	1.3	0.303
50017	DE-23	0.711	0.473	0.52 †	0.029 †	0.497	0.81	1.33	0.00985	0.0626	0.0308	1.41	0.335
50018	DE-23	0.753	0.512	0.586	0.035	0.54	0.91	1.53	0.0126	0.0649	0.0303	1.39	0.326
50020	GI-23	0.759	0.536	0.578	0.032	0.552	0.917	1.58	0.01	0.08 ††	0.03	1.43	0.36
50024	GJ-23	0.771	0.512	0.574	0.035	0.548	0.917	1.43	0.011	0.069	0.03	1.31	0.327
50025	GJ-23	0.795	0.537	0.588	0.036	0.531	0.865	1.37	0.00308 ††	0.057	0.023 ††	1.31	0.325
50027	DN-23	0.794	0.498	0.569	0.032	0.511	0.912	1.47	0.0101	0.0643	0.0295	1.34	0.332
50029	AD-23	0.847 ††	0.529	0.649 ††	0.042 ††	0.572	0.67 ††	1.44	0.01	0.0729	0.0347 †	1.38	0.347
50032	DE-11	0.72	0.49	0.52 †	0.05 ††	0.54	0.96	1.35	0.03 ††				
50037	DE-23	0.751	0.514	0.58	0.036	0.542	0.912	1.54	0.0128	0.065	0.0304	1.38	0.325
52283	GJ-23	0.771	0.512	0.601	0.034	0.56	0.991	1.52	0.011	0.065	0.03	1.34	0.33
52384	DE-23									0.08 ††	0.04 ††	1.36	0.35
52387	DE-14	0.51 ††	0.48	0.549	0.031	0.41 ††	0.61 ††	0.99 ††	0.18 ††	0.053 †	0.024 †	0.907 ††	0.264 ††
52427	ZZ-23					0.463 †	0.765 ††	1.24 †	0.0103				

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Calcium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52491	GI-23	0.763	0.515	0.574	0.033	0.495	0.807	1.38	0.01	0.0574	0.0261 †	1.32	0.315
52494	GG-23	0.704	0.466	0.529	0.03	0.52	0.875	1.42	0.01	0.059	0.027	1.23	0.302
52495	GI-24	0.811	0.583 ††	0.596	0.037	0.546	1.01 †	1.53	0.0134	0.0673	0.0319	1.34	0.356
52565	DE-23	0.715	0.527	0.541	0.032	0.575	0.93	1.68	0.0091	0.0702	0.0325	1.39	0.35

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Carbon (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	CA-37	43.3 †	39.6	47.9	44.3	41.1	36.4	45.2	43.4	42.8	42.5	48.1 †	42.9
10156	CA-37	44.2	40.1	48.2	45	42.6	37.4	46.5 †	45	44.7	44.6	49.4	44.4
10173	CA-37	42.1 ††	38.6 ††	47.4	43.1 ††	42.2	36.5	45.8	44.5	44.1	44.2	48.9	44
10181	CA-37	45	40.9	49.2	46.3	41.7	36	45.8	44.1	44.2	43.9	48.9	43.9
20204	CA-37	43.7	39.8	48.1	43.9 †	40.5	34.3 †	45.6	42.5	38.9 ††	38.7 ††	42.9 ††	39 ††
21100	CA-37	45.3	40.8	49.5	46.2	42.5	37	46.3	44.1	44.8	44.5	49.8	44.4
21138	CA-37	44.3	39.8	47.1	42.6 ††	41.1	35.9	45.5	44.6	44.7	44.3	49.3	43.4
21229	CA-37	40.9 ††	40.1	43.7 ††	41.4 ††	40.8	33.8 †	44.9 †	42.1	43.8	43.2	47.1 ††	43.5
21230	CA-37	44.5	40.3	48.6	45.4	41.8	36.2	45.7	44	42.8	42.5	47.8 †	42.9
21232	Not Specified	41.7 ††	37.5 ††	42.4 ††	46.1	36.1 ††	32.9 ††	41.3 ††	38.6 ††	41.1 ††	41.3 ††	47.1 ††	40.7 ††
50004	CA-37	44.2	40.1	48.7	45.1	41.6	36.3	45.3	43.2	43.3	43.9	48.8	43.5
50005	CA-37	44.4	40.1	49.5	45.2	40.4	34.5 †	45.6	42.2	43.3	43.1	48.6	43.5
50008	CA-37	44.9	40.6	48.9	45.7	41.7	36.1	45.7	43.9	44.2	44.1	49.1	44.1
50011	CA-37	44.7	40.9	49.2	45.2	41.2	35.7	45.8	42.8	44	43.8	49.1	44.4
50012	CA-37	48.4 ††	40.9	49.4	45.8	39.7 †	35.4	43.9 ††	41.4 †	44.9	44.7	51.7 ††	44.4
50014	CA-37	44.8	40.3	49	45.7	42.8	37.1	46.5 †	44.7	44.4	44.1	49.2	44.1
50017	CA-37	44.3	40.5	48.7	45.7	42.5	45.6 ††	36.8 ††	44	44.4	44.4	49.1	43.4
50018	CA-37	44.4	40.5	48.4	45	41.3	36.2	45.3	43.3	43.7	43.4	49	43.8
50024	CA-37	44.9	40.7	48.9	45.6	42.3	37	46.1	44.2	44.1	44.2	49.8	44.3
50029	CA-37	44.7	40.2	49.2	46.1	38.6 †	33.7 †	43.7 ††	40.7 ††	42.9	42.6	48.1 †	41.8 ††
50032	CA-37	41.8 ††	38.3 ††	46.9 †	41.6 ††	41.2	33.3 ††	43.8 ††	42.3				
50037	CA-37	44.4	40.3	48.4	45	41.3	36.2	45.3	43.3	43.8	43.6	49	43.7
52283	CA-37					42.2	36.6	45.9	43.7	43.5	43.7	49	43.8
52427	ZZ-26					38.4 ††	32.6 ††	43.5 ††	39.9 ††				
52491	CA-37	44.5	40.3	49.1	44.7	40	34.8	40.6 ††		44.5	44.4	49.8	45
52495	CA-37	44	40.2	47.9	45.2	41.8	36.7	45.6	43.9	43.6	43.4	48.6	43.5
52565	CA-37	41.8 ††	39.1 †	46.8 †	42.4 ††	41.1	36.2	46	43.6	42.4 †	43.3	49.4	44.5

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Chloride (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	BA-32	5230	13500	1130	550	4140	12800	134	212	959	1190	538	7580
8888	BB-18	7600 ††	14200	1770 †	690	3760	11500 †	220	230	1130	1580 ††	380	7520
10173	BA-27	5200	13100	1300	600	4200	12800	200	300	1200	1200	600	7600
20204	BB-27	3750 ††	11500	4090 ††	1230 ††	4080	10200 †	41.8	51.7	1630 ††	1500 †	2200 ††	7730
21043	BB-31	4730	14500	1040	497	3650	9810 †	144	231	951	1120	535	7220
21088	BB-31	0.618 ††	1.43 ††	0.29 ††	0.062 †	5450 ††	13500	1300 ††	202	1380 ††	1290	2070 ††	7470
21100	BB-31	6200 †	12200	4160 ††	1130 †	5060 †	13800 †	22700 ††	3500 ††	1060	1050	2710 ††	7110
21138	BA-32	5600	14200	1480	745	413 ††	12600		140	1340 †	1460 †	890 †	8280 †
21178	BB-28	5160	13300	1090	440	3350	10400 †	105	170	908	1070	494	7220
21229	BB-31	5190	13600	1090	464	4190	12700	218	275	984	1120	615	7560
21230	BB-28	4980	13000	1010	408	3350	12800	121	209	996	1140	533	7700
21232	BB-31	0.425 ††	1.25 ††	0.1 ††	0.05 †	3250	9250 ††	100	100	1000	1000	500	6500 ††
50005	BB-32	4960	13400	1360	206	3870	184 ††	193	245	473 ††	1350	735 †	7300
50011	BB-31	4800	11400	1260	532	3970	12500	303	305	1060	1070	582	7560
50012	BB-31	5840	12800	936	420	4410	12400	213	202	979	1140	555	8440 ††
50014	BB-31	5600	14300	1400	600	4600	13800 †	400 †	300	1400 ††	1200	700	8200 †
50018	BB-32	5220	13600	1340	576	4230	12400	101	302	1040	1160	508	7440
50020	BA-31	4630	11000	2630 ††	1400 ††	4990 †	12800	2310 ††	66.7	1870 ††	1620 ††	2290 ††	6860 †
50027	BB-32	5310	14400	940	230	3890	12900	130	100	1080	1200	460	7980
50029	BB-31	6500 †	13200	2840 ††	803	4420	10400 †	1260 ††	201	1110	946	1980 ††	7120
50032	BB-31	5500	15500	1800 †	1500 ††	3300	13200	200	500 ††				
50037	BB-32	5220	13600	1340	578	4230	12400	99	301	1040	1170	506	7440
52494	BA-32	4830	11800	1050	309	3750	10900 †	186	172	1080	1120	480	7360

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Cobalt (µg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-24	156	2960	107	30.2	53.6	42.6	19.4	12.9	182	6.09	28	105
8888	DE-24	175	3460 ††	125 ††	38.6 ††	61.2	80.4	29.2 ††		184 ††		41	110
10156	GI-23	200 ††	2930	148 ††	95 ††					212 ††	79 ††	56.5 ††	89.7
10173	DN-24	153	2800	111	29.2	58.4	82.1	30.9 ††	13.1	184 ††	5.79	41.5	112
21088	DE-23	150	3060	110	20 ††	108 ††	115 ††	40.7 ††	28.7 ††	206 ††	27.5 ††	76.2 ††	159 ††
21100	DE-24	152	2950	138 ††	23.4 ††	56.8	69.7	22	15	198 ††	2.9	31.6	107
21138	DE-24	160	2510 ††	110	29.4	53.6	63.4			179 ††		31.4	99
21178	DE-24	150	2790	106	30	47	49	17	11	159 ††	5	42	90
21229	GI-24	150	2790	109	36 ††	48.1	56.5	31.8 ††	23.5 ††	205 ††	14 ††	28.3	101
21230	DE-24	189 ††	3230	146 ††	62.4 ††	51.1	66.9	13.5	5.52 ††	173 ††	21.6 ††	44.8	97.1
50004	DE-24	168	3060	109	28.9	55.4	66.3	19.3	12.1	131 ††	6.76	26.4	84.2 ††
50005	GJ-23	154	3090	137 ††	37.2 ††	56.1	45.2	773 ††	38.1 ††	136 ††	31.5 ††	42.1	93.8
50011	DE-24	147	2710	104	31.5	51.5	58.8	20.9	14.5	172 ††	7.86	32.7	95.9
50012	DN-24									182	6	35	100
50014	DE-24	156	3040	107	29	57.3	62	19	12	181	2.8	32	102
50018	DE-24	162	3000	119 ††	23.8 ††	54.2	77.6	63.7 ††	10.3	182	9.44 ††	47.8	109
50020	GI-23	248 ††	482 ††	190 ††	42.2 ††	2010 ††	2380 ††		6.7 ††	97.8 ††	88.2 ††	175 ††	140 ††
50024	GJ-24	181 ††	3030	101	31	55	76	24	12	147 ††	12.1 ††	50.6	75.7 ††
50027	DN-23	162	3460 ††	170 ††	10 ††	10 ††	24 ††	13	14	170 ††	33 ††	72 ††	52 ††
50029	AD-23	175	1640 ††	128 ††	42.2 ††	56.5	12.8 ††	49.7 ††	24.8 ††	208 ††	14.6 ††	35.8	92
50037	DE-24	163	2910	118 ††	24.1 ††	54.4	78.5	63.5 ††	9.93	181	9.41 ††	48.2	108
52495	GI-24	158	3050	112	30.9	54.1	62.4	22	12.3	181	5.75	34	104
52565	DE-23					47.8	37.9 ††	581 ††	67.9 ††	79.3 ††	98.8 ††	95.4 ††	137 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Copper (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
22	DE-23	6.76	9.72	8.25	5.51	2.97	11.4	4.74	4.04	8.42	6.15	34.9	3.7
8888	DE-23	6.81	9.86	7.64	5.01	3.66	11.9	5.1	4.61	8.85 †	6.48	37.8	3.97
10156	GI-23	10.8 ††	13.4 ††	10.8 ††	8.2 ††	3.6	10.4	4.68	4.03	16.9 ††	8.34 ††	34.7	5.49 ††
10173	DN-24	6.49	9.62	7.82	5.38	3.24	11.8	2.98 ††	4.02	8.37	5.79	33.7	3.19
11079	DE-23	6.34	9.7	7.6	4.84	3.65	11.2	4.83	3.82	8.35	6	35.7	3.58
20204	GJ-23	9 ††	9.26	6.7 †	10.4 ††	2.96	13.6 ††	1.15 ††	3.4	11.3 ††	9.18 ††	31.3	4.9 ††
21043	GJ-23	5.63	8.9	6.55 †	4.41	3.09	10.3	4.12	3.84	8.23	5.95	32.8	3.4
21088	DE-23	6.19	9.82	7.57	4.85	3.56	12	4.8	3.66	9.68 ††	6.69 †	39.2	4.19 †
21100	DE-24	6.54	9.68	7.73	5.35	3.3	12.5	4.97	4.09	9.02 †	6.38	36.4	3.76
21138	DE-23	5.68	7.59 ††	6.81	4.61	3.4	12.3	4.7	4.1	8.6	6.1	36	3.6
21178	DE-23	6.17	9.2	7.42	4.63	2.82	10.2	4.1	3.3	8.2	5.8	34.2	3.7
21190	AD-13	7.77 ††	6.43 ††	8.4	5.42					8.73 †	4.08 ††	35.7	3.87
21193	GJ-11									8.34	6.59	23.5 ††	6.24 ††
21229	GI-23	5.98	9.38	7.22	4.65	3.02	10.1	4.42	2.8 †	8.22	5.8	35.2	3.47
21230	DE-23	6.33	9.86	7.59	4.8	2.83	10.8	4.13	3.4	7.03 ††	5.06 †	30.3	3.06 †
21232	DE-23	5.57	8.75	7.75	4.49	2.72	10.3	4.38	3.3	9.24 †	5.86	34.7	3.66
21234	GH-09	7.39 †	10.8 ††	8.33	5.91 †					7.87 †	5.01 ††	31.6	3.42
50004	DE-23	5.84	7.71 ††	6.87	4.68	3.01	11.4	4.27	3.62	8.28	5.97	34.3	3.39
50005	GJ-23	6.04	9.28	7.17	5.01	3.15	9.77	4.76	4.15	8.5	6.46	31.8	3.75
50008	GJ-23	5.86	8.9	7.45	4.89	3.35	10.4	4.3	4.1	7.66 †	5.73	32.4	3.43
50011	DE-23	6.62	10.2	8.04	5.05	2.93	10.1	4.34	4.1	8.9 †	6.51	36.9	3.74
50012	DN-23	6.67	9.9	7.82	5.14	3.18	10.7	4.31	3.65	8.31	6.04	35.6	3.69
50014	DE-24	6.2	9.31	7.15	4.86	3.21	10.9	4.44	3.91	8.53	6.15	35.8	3.66
50017	DE-23	5.51	8.59	6.46 †	4.39	2.92	11.2	4.5	3.36	8.32	5.93	35.8	3.56
50018	DE-23	6.21	9.12	7.58	4.87	3.16	10.3	4.46	4.03	8.27	5.76	36.9	3.58
50020	GI-23	6.23	9.42	7.16	4.49	3.92 †	8.92	3.5 ††	3.7	9.16 †	6.93 ††	37.9	3.8
50024	GJ-23	6.6	9.1	7.5	4.9	3.42	12.4	4.57	3.5	7.97	6.47	33.2	3.24
50025	GJ-23	6.58	9.51	8.02	5.18	0.1 ††	7.73 ††	0.9 ††	1.1 ††	6.7 ††	2.56 ††	39.5	1.2 ††
50027	DN-23	6	8.91	7.15	4.5	3.04	10.3	4.44	3.45	8.1	5.68	34.5	3.66
50029	AD-23	6.47	2.71 ††	7.73	5.32	2.89	0.244 ††	4.62	0.151 ††	8.3	3.82 ††	34.6	1.69 ††
50032	DE-11	6.25	9.6	7.4	5.15	5.8 ††	11.6	5	3.7				
50037	DE-23	6.24	9.16	7.6	4.85	3.18	10.3	4.48	4.01	8.3	5.78	36.6	3.56
52283	GJ-23	10.7 ††	9.51	7.32	5.06	4.08 ††	12.1	4.68	3.82	8.18	5.91	33.8	3.52
52384	DE-23									7.89 †	6.22	29 ††	4.75 ††
52387	DE-09	6.65	10.5 †	8.01	5.15	9.63 ††	14.6 ††	8.65 ††	5.38 ††	7.56 †	5.63	32.4	3.47
52427	ZZ-23					2.9	10	4.26	3.52				
52491	GI-23	8.2 ††	11 ††	8.8 †	4.5	3.1	10	4.7	3.4	7.29 ††	5.12 †	32.2	2.5 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Copper (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52494	GG-23	6.71	9.48	7.81	5	3.1	10.1	4.3	3.6	7.6 †	5.6	31.8	3.4
52495	GI-24	6.35	11.4 ††	7.85	5.32	3.2	11.2	4.53	3.88	8.27	6.02	34.8	3.62
52565	DE-23	18 ††	9.31	18 ††	16.9 ††	3.62	10.7	3.83 †	4.11	8.22	5.76	37.8	3.39

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Iron (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	146	4130	558	49.2	79	43.2	56.2	23.2	72.5	45.8	53.7	81.4
8888	DE-23	145	3960	509	49.3	113 ††	37.9	57.2	27.1	76.2	47.2	54.3	88.3
10156	GI-23	74.7 ††	2320 ††	323 ††	21 ††	76.1	41.7	57.5	27.1	71.8	42.6	49.9	70.9
10173	DN-24	135	3590	505	44.6	81	51.2 ††	76.6 ††	22.9	75.6	48.3	67.7 ††	99.3 ††
11079	DE-23	144	3820	555	52.2	85	45	64.5 ††	30.8	78.8	49	65.8	89.3
20204	GJ-23	131	1640 ††	459	137 ††	77.8	35.7	66.3 ††	25	61.3 ††	46.4	48.9	79.8
21043	GJ-23	130	3610	377 †	43.4	76.6	47.8	63 †	25.6	69.3	43.9	62	82.2
21088	DE-23	133	3750	565	45.1	83.1	38.9	57.9	22.5	109 ††	51	61.8	92.1 †
21100	DE-24	125	2260 ††	1410 ††	59.2 ††	91.1 †	42.1	57.9	26.9	75.2	47.3	47.2	50.5 ††
21138	DE-23	145	3420	458	47.3	93.6 ††	41.9	57.5	23.7	73	45	53	80
21178	DE-23	132	3660	548	43.3	72	38	50.1 †	18.6	67.2	40.9	56.4	73.5
21190	AD-13	130	2610 ††	552	42.2					57.6 ††	36 ††	51.6	76.6
21193	GJ-11	129	3600	528	52					76	43.1	51.6	77.2
21229	GI-23	133	3420	481	49.8	78.6	33.9	55.2	24.2	74.7	45.7	52.3	77.9
21230	DE-23	137	3770	500	47	57.9 ††	26.8 ††	39.4 ††	15.9	71.9	44.9	42.1	76.1
21232	DE-23	140	3830	628 †	51.6	77.3	35.7	48.8 †	14.4 †	76.2	41.4	52.3	77
21234	GH-09	147	4150	655 ††	47.3					67	39.6	60.9	77.7
50004	DE-23	142	3070	400 †	46.1	77.3	38.5	50.4 †	21.4	69.7	43.7	52	79.3
50005	GJ-23	110	3490	522	15.8 ††	78.8	40.2	61.9 †	30.6	83 †	53.8	59.3	85.9
50008	GJ-23	131	3920	470	46.4	90.8 †	36.7	55.4	23.8	67.3	41.1	49.2	71.8
50011	DE-23	147	3550	519	49.5	77.1	37.3	53.6	22.9	79.9	50.1	57.2	83.7
50012	DN-23	143	3170	511	49	74.7	39.2	56	26.2	76.6	45.7	57.2	79.3
50014	DE-23	144	3890	442	42	81.3	39	55.1	22.1	67.9	41.9	50.9	66.7 †
50017	DE-23	120	3330	413	38 ††	83.1	38.8	57.5	25.7	72.7	44.9	57.2	82
50018	DE-23	127	3580	512	49.4	83.1	35.2	57.1	23.6	73.8	48.4	55.2	79
50020	GI-23	145	3250	483	49.1	90.6 †	45.5	68.8 ††	28.8	83.5 †	50.9	55.9	97.4 ††
50024	GJ-23	144	3640	506	47	73.5	34.7	53.2	20.2	75.8	48.4	57.8	81
50025	GJ-23	131	3590	456	43.8	64.4 ††	33.3	47.7 ††	19.4	71.5	40.9	48.1	70 †
50027	DN-23	142	3780	480	44.5	79.8	44.3	55	22.4	73	42.3	54.2	85.6
50029	AD-23	117	891 ††	239 ††	50.6	52.8 ††	7.41 ††	45.4 ††	19.6	75.5	51.1	48.6	42.7 ††
50032	DE-11	122	2840 †	562	56 †	78	41	54	15				
50037	DE-23	126	3580	517	49.2	83.3	35.1	57.1	23.5	74.1	48.6	55.4	79.4
52283	GJ-23	132	3590	521	45.2	74.8	38.5	54.4	23.5	72.6	45.7	51.8	80.6
52384	DE-23									75.2	51	58.2	83.9
52387	DE-09	147	3720	474	49.1	86.9	39.6	66.2 ††	16.9	78.4	50.8	61.4	82.7

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Iron (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
52491	GI-23	95 ††	2410 ††	360 ††	34 ††	82	33	52	21	70.3	43.3	48.9	60.3 ††
52494	GG-23	112	2530 ††	445	43	69.2	34.4	58.5	19.7	65.3	41.1	48.3	59.4 ††
52495	GI-24	130	3320	484	49.9	78.7	39.6	56	22	70.4	44.7	52.4	74
52565	DE-23	133	3500	461	55.7 †	84.3	38.8	61	25.5	77.1	48.2	58	91.8 †

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Lead (µg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
10156	GI-23	211 ††	416 ††	471 ††	91.8 ††					253 ††	153 ††	117 ††	130 ††
10173	DN-24	101	309	168	3.33	73.2	75.5	79	14.8	8.17	1.64	57.9	105
20204	GJ-23	61 ††	48 ††	157	17 ††	309 ††	524 ††	248 ††	421 ††				
21088	DE-23	110	330	170	7	273 ††	206 ††	378 ††	79.6 ††				
21100	DE-24	105	287	149	1	82.4	75.9	88.5	19.3	7.84	1	60.8	61.7
21138	DE-24	110	279	175		68.8		75.2				67	78
21178	DE-24	109	313	169	12	65	59	74	17	41 ††	7	60	68
21229	GI-24	93	282	182	6.77	56.5	59.1	88.2	40.9 ††	22.9 ††	34.5 ††	64.1	81.1
21230	DE-24	114	346 ††	173	8.88	60.4	75.9	80.6	3.76 ††	10.3	3.99	52.5 ††	63.5
50004	DE-24	98.5	317	212 ††	4.92	52.7	47.4	66.6	12.3	10.6	5.17	62.3	91.2
50005	GJ-23	458 ††	320	324 ††	368 ††	155 ††	99.7 ††	247 ††	140 ††	132 ††	119 ††	240 ††	198 ††
50011	DE-24	96.2	297	160	9.13	65.3	59.4	75.8	18.3	15.6	11.8 ††	69.2	80
50012	DN-24									11	9 ††	63	128 ††
50014	DE-24	147 ††	313	160	9.3	72	74.3	80.7	15.5	10.7	2	60.9	63.2
50018	DE-24	96.8	314	181	6.91	79.7	54.2	84	13.4	16	17 ††	64.4	86.6
50024	GJ-24	109	289	165	14.5	49 ††	39	86	15	21.2 ††	2.7	68.8	61.6
50037	DE-24	96.4	306	183	6.86	79.5	54.1	84.1	13.2	16.4	16.8 ††	64.2	86.2
52495	GI-24	106	311	172	6.29	69.3	64.7	81.9	13.9	13.3	2.24	62.1	76.8
52565	DE-23					600 ††	529 ††	42 ††	444 ††	438 ††	867 ††	790 ††	188 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Magnesium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	0.236	0.379	0.278	0.185	0.161	0.181	0.08	0.146	0.102	0.107	0.354	0.208
8888	DE-23	0.22	0.359	0.256	0.17	0.172 ††	0.189	0.088 ††	0.156	0.107	0.111	0.364	0.216
10156	GI-23	0.223	0.36	0.271	0.181	0.152	0.167	0.079	0.129	0.092 †	0.1	0.316 †	0.189
10173	DN-24	0.219	0.365	0.26	0.172	0.164	0.198 †	0.0827	0.142	0.104	0.105	0.36	0.206
10181	GF-23	0.22	0.367	0.27	0.171	0.149	0.165	0.078	0.128	0.107	0.111	0.364	0.217
11079	DE-23	0.214	0.352	0.263	0.175	0.145	0.15 †	0.08	0.127	0.0993	0.1	0.336	0.194
20204	GJ-23	0.251 ††	0.334	0.238 ††	0.221 ††	0.16	0.177	0.085 †	0.145	0.0952	0.106	0.305 ††	0.18 †
21043	GJ-23	0.205	0.349	0.243	0.165	0.156	0.174	0.076	0.141	0.105	0.11	0.341	0.206
21088	DE-23	0.203	0.345	0.249	0.161	0.152	0.178	0.0782	0.124	0.103	0.106	0.351	0.21
21100	DE-24	0.244 †	0.377	0.288 †	0.218 ††	0.163	0.206 ††	0.0882 ††	0.155	0.115 ††	0.122 ††	0.368	0.222
21138	DE-23	0.229	0.356	0.271	0.181	0.16	0.187	0.0789	0.14	0.101	0.105	0.352	0.207
21178	DE-23	0.209	0.34	0.246	0.157 †	0.139 ††	0.17	0.073 ††	0.113 ††	0.095	0.098	0.326	0.197
21190	AD-13	0.231	0.351	0.274	0.179					0.115 ††	0.118	0.396 ††	0.236 ††
21193	GJ-11	0.29 ††	0.35	0.26	0.18					0.097	0.107	0.32	0.209
21229	GI-23	0.217	0.362	0.271	0.179	0.155	0.164	0.0807	0.131	0.1	0.105	0.35	0.206
21230	DE-23	0.2	0.342	0.23 ††	0.146 ††	0.13 ††	0.165	0.0628 ††	0.104 ††	0.0819 ††	0.0847 ††	0.298 ††	0.174 ††
21232	DE-23	0.234	0.355	0.294 ††	0.18	0.15	0.17	0.08	0.13	0.1	0.1	0.35	0.2
21234	GH-09	0.23	0.38	0.27	0.17					0.1	0.1	0.36	0.21
50004	DE-23	0.215	0.305 ††	0.255	0.179	0.164	0.188	0.081	0.138	0.102	0.105	0.329	0.198
50005	GJ-23	0.222	0.349	0.263	0.19	0.148	0.164	0.0804	0.135	0.0974	0.105	0.341	0.195
50008	GJ-23	0.218	0.365	0.265	0.188	0.158	0.166	0.074 †	0.136	0.09 †	0.095	0.322	0.188
50011	DE-23	0.233	0.378	0.277	0.185	0.155	0.17	0.078	0.14	0.106	0.111	0.368	0.21
50012	DN-23	0.226	0.37	0.284	0.191	0.154	0.164	0.0789	0.134	0.0942	0.1	0.357	0.201
50014	DE-23	0.228	0.356	0.263	0.168	0.156	0.18	0.078	0.132	0.0997	0.103	0.339	0.194
50017	DE-23	0.201	0.326 †	0.235 ††	0.162	0.156	0.17	0.091 ††	0.139	0.1	0.105	0.35	0.205
50018	DE-23	0.211	0.352	0.262	0.178	0.159	0.171	0.0812	0.146	0.101	0.106	0.347	0.208
50020	GI-23	0.227	0.37	0.269	0.18	0.156	0.184	0.0837	0.141	0.11 †	0.11	0.36	0.2
50024	GJ-23	0.222	0.345	0.257	0.182	0.16	0.182	0.08	0.139	0.104	0.11	0.338	0.203
50025	GJ-23	0.226	0.366	0.265	0.185	0.157	0.175	0.076	0.138	0.104	0.11	0.351	0.218
50027	DN-23	0.227	0.361	0.265	0.178	0.157	0.181	0.0784	0.137	0.102	0.104	0.344	0.209
50029	AD-23	0.244 †	0.307 ††	0.29 ††	0.203 †	0.165	0.13 ††	0.08	0.148	0.106	0.113	0.353	0.206
50032	DE-11	0.206	0.325 †	0.248	0.169	0.15	0.172	0.071 ††	0.125				
50037	DE-23	0.214	0.35	0.264	0.179	0.158	0.17	0.081	0.147	0.103	0.107	0.345	0.21
52283	GJ-23	0.216	0.357	0.255	0.179	0.158	0.184	0.078	0.137	0.102	0.107	0.316 †	0.206
52384	DE-23									0.06 ††	0.07 ††	0.34	0.18 †
52387	DE-09	0.22	0.36	0.27	0.18	0.2 ††	0.2 ††	0.1 ††	0.15	0.092 †	0.102	0.324	0.195

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Magnesium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52427	ZZ-23					0.14 ††	0.154	0.0758	0.131				
52491	GI-23	0.216	0.351	0.259	0.175	0.149	0.168	0.0806	0.124	0.0986	0.103	0.338	0.197
52494	GG-23	0.206	0.327 †	0.24 †	0.155 †	0.145	0.165	0.075	0.126	0.092 †	0.096	0.319	0.187
52495	GI-24	0.226	0.368	0.268	0.196	0.169	0.201 ††	0.09 ††	0.148	0.104	0.11	0.355	0.214
52565	DE-23	0.208	0.353	0.246	0.165	0.16	0.177	0.084	0.143	0.107	0.112	0.37	0.217

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Manganese (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	ASP 1802-2	ASP 1802-3	ASP 1802-4	ASP 1805-1	ASP 1805-2	ASP 1805-3	ASP 1805-4	ASP 1808-1	ASP 1808-2	ASP 1808-3	ASP 1808-4
22	DE-23	80.8	164	310	18.8	32.9	41	2130 †	22.8 †	12.1	15.2	146	25.1
8888	DE-23	80.2	170 ††	313	18.1	30.7	37.2	2070	19.4	13	16.5	164 †	27.1
10156	GI-23	76.2	153	289	18.5	30.5	37.7	1760	20.7	11.2	14.5	134	23.7
10173	DN-24	75.1	152	288	18	33.3	43.8	1960	20.7	12.9	16	156	27.2
11079	DE-23	83.6	171 ††	317	19.9	34.6	41.9	1730	22.1	13.4	16.7	158	28
20204	GJ-23	63.6	138	486 ††	35.8 ††	31	36.7	1890	25.5 ††	8.24 ††	9.66 ††	86.5 ††	7.75 ††
21043	GJ-23	80.3	173 ††	263	28.2 ††	41.2 ††	48.5 ††	1660	29 ††	12.1	17.3	139	26.1
21088	DE-23	74.1	163	290	18	32.6	41.2	1850	20.5	13.4	16.7	154	27.4
21100	DE-24	80.2	157	297	19.2	33.2	45.3	2110	21.8	13.8 †	17.7 †	153	26.9
21138	DE-23	80	149	293	18	33.4	43	1920	19.9	12	16	144	26
21178	DE-23	77.7	160	298	17.9	30	36.3	1720	18.2	11.9	15.1	142	25.1
21190	AD-13	76.1	147	293	15.4 ††					9 ††	10.9 ††	145	23
21193	GJ-11	76.9	152	325	17					12.8	13.6 †	132	29.9 ††
21229	GI-23	74.7	151	287	18.7	31.6	35.7	1800	20.9	12.6	16.2	146	25.8
21230	DE-23	77.7	164	299	18.9	28.3 ††	33.1	1770	17.3 †	12.1	15.8	140	24.6
21232	DE-23	73.2	153	321	18.5	31.5	39.1	1910	19.9	12.6	15.2	146	25.1
21234	GH-09	83.2	173 ††	321	18.9					11.4	12.6 ††	148	22 †
50004	DE-23	74.4	131 ††	281	18.9	34.3	43.1	1700	19.6	12.4	15.9	139	25.3
50005	GJ-23	73.9	151	280	18	32.4	38.5	1680	21.1	13.1	16.8	150	27
50008	GJ-23	71.5	150	289	17.4	32.3	38.1	1900	21	11.2	14.3 †	137	22.8
50011	DE-23	86.4	171 ††	316	20.3 †	31.4	38	1860	20	13.1	16.6	147	26.2
50012	DN-23	77.9	159	311	19.2	33.4	42.8	1880	20.4	12.9	16	159	27.5
50014	DE-23	80	158	295	17.2	34.1	42.8	1940	20.4	12.5	15.6	143	23.7
50017	DE-23	68.3	146	258	16.8	33.7	39.6	1910	21.1	12.7	15.8	145	25.2
50018	DE-23	71.1	152	300	18.2	32.3	36.8	1820	20.3	12.2	15.7	151	25.4
50020	GI-23	70.9	151	268	16.2	31.6	34.6	1740	17.5 †	13.4	17.1	153	25.6
50024	GJ-23	77	151	281	18.1	33.3	41.4	1880	20.5	12.3	16	141	24.7
50025	GJ-13	71.3	148	267	16.9	32.8	39.2	1770	19.9	12.4	15.9	149	24.5
50027	DN-23	76	157	289	18	32.2	39.2	1890	18.8	12.3	15.8	146	26.1
50029	AD-23	82.6	120 ††	316	22.3 ††	33.9	28.1 ††	1780	23 †	14.1 ††	18.4 ††	152	25.6
50032	DE-11	66	121 ††	248 †	16.4	32.1	39.5	2080	21.8				
50037	DE-23	70.9	156	301	18.3	32.3	36.9	1820	20.2	12.1	15.7	151	25.1
52283	GJ-23	72.2	157	288	18.2	32	42.6	1850	19.3	11.8	15.5	142	24.7
52384	DE-23									4.04 ††	7.18 ††	147	17 ††
52387	DE-09	75.6	153	276	17.2	19.4 ††	24.7 ††	2120 †	6 ††	11.1	14.3 †	132	23.3
52427	ZZ-23					29.6	36.1	1750	19.2				
52491	GI-23	75	148	277	18	31	36	1720	18	12.8	16.4	140	26.3

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Manganese (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52494	GG-23	70.5	144	269	16.5	29.5	37	1760	17.7	11.3	14.4	134	23.3
52495	GI-24	76.8	158	294	18.5	33.2	41.7	1760	20	12.1	15.6	144	25.4
52565	DE-23	61.5 ††	135 ††	258	9.14 ††	31.6	37.6	1780	20	12.6	16.3	155	26.8

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Molybdenum (µg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-24	277	760	238	388	607	1190	257	888	2510	1620	126	517
8888	DE-24	301	859 ††	278 ††	501 ††	606	1080	263	885	2490	1580	123	561
10156	Not	104 ††	556 ††	39.4 ††	66.5 ††								
10173	DN-24	262	792	251	396	584	1280	261	899	2720 ††	1650	135	577
11079	DE-23									2290 ††	1460	104 ††	475
20204	GJ-23	10 ††	92 ††	7 ††	22 ††	969 ††	1310 ††	464 ††	1170 ††				
21088	DE-23	240	710	240	400	617	1080	255	878	2610	1690	131	559
21100	DE-24	319 ††	759	287 ††	445	697	1820 ††	537 ††	1250 ††	2670 ††	1650	114	541
21138	DE-24	295	751	275	463	635	1080	209 ††	981	2410	1510		506
21178	DE-24	268	776	252	398	567	1030	240	820	2510	1610	147 ††	550
21229	GI-24	248	764	279 ††	383	543	1050	243	819	2490	1610	117	534
21230	DE-24	281	784	252	423	642	1250	275 ††	947	2310 ††	1450	119	482
50004	DE-24	211 ††	666 ††	210 ††	332 ††	556	1160	244	788	2560	1660	170 ††	513
50005	GJ-23	307	752	302 ††	437	605	918	339 ††	756	3320 ††	2100 ††	116	655 ††
50011	DE-24	264	737	245	380	565	1080	252	809	2420	1590	127	536
50012	DN-24									2550	1650	114	576
50014	DE-24	263	703	253	403	627	1140	253	887	2620	1640	140	563
50018	DE-24	250	733	261	428	590	991	252	939	2540	1650	122	565
50020	GI-23	506 ††	849 ††	215 ††	629 ††	1500 ††	1110	536 ††	1760 ††	1430 ††	967 ††	164 ††	435 ††
50024	GJ-24	271	759	260	419	715 ††	1420 ††	364 ††	1040	2560	1680	132	503
50027	DN-23	342 ††	980 ††	417 ††	540 ††	602	1050	597 ††	913	2530	1540	10 ††	539
50029	AD-23	206 ††	622 ††	269	458	609	17.8 ††	362 ††	585 ††	2510	1470	153 ††	553
50037	DE-24	250	731	259	430	592	990	253	940	2540	1650	122	566
52491	Not Specified									2230 ††	2170 ††	50 ††	799 ††
52495	GI-24	257	822	247	404	627	1150	257	915	2510	1640	118	533
52565	DE-23					694	1040	234	925	2630	1710	251 ††	610

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Nitrate Nitrogen (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	BA-31	15.1	359	9.58	45.3	808	6710	5.68	3.61 †	4.4	0.001	0.001	0.001
8888	BB-18		350			780	6910		3.13 †				
10173	BB-31	19	352	20	78 ††	816	7100	7	17 ††	2	5	0.1	8
20204	BB-30	1060 ††	321	3370 ††	493 ††	4020 ††	7520	1940 ††	1420 ††	306 ††	188 ††	67 ††	300 ††
21088	BB-31	52.5 †	465 ††	37.3 ††	110 ††	837	7260	0.0729	0.0625	5.51	0.498	0.486	1.05
21100	BB-31	30.3	339	18.7	46.1	972 ††	9170 ††	16.3 †	5.83 †	6.83	5.8	12.3	10.5
21138	GF-31		280 ††			550 ††	6320						
21178	BB-31	18.8	350	14.4	50	700	6000	1	1	2.5	1.2	6.3	10.1
21229	BB-31	25.9	345	3.7	50.1	789	6330	1.81	0.64	3.63	6.04	6.68	1.79
21232	BB-31	35.7	432 ††	23.3	56.8	773	5800	5.58	2.2	6	8.63 †	8.65	15
50005	BA-30	17.5	342	9.09	32.6	779	7140	0.902	0.741	0.556	0.506	1.03	1.8
50011	BB-31	11	349	13.5	44	708	5610	7.31	2.78	3.26	1.87	4.14	5.84
50012	BB-31	19	354	13.4	49.7	754	6590	2.57	0.945	2.43	0.836	2.46	3.33
50020	BA-31	1	272 ††	10.2	48.9	596 ††	5580						
50025	BB-31	85.7 ††	3980 ††	10	631 ††	5080 ††	73700 ††	131 ††	142 ††				
50027	BB-31	44	438 ††	16	56	729	5890	2	1	5	4	4	3
50029	BB-31	26.3	383 †	23.8	56.5	747	6370	0.5	0.5	12.4 ††	14.6 ††	14.7	13.1
50032	BB-31	153 ††	365	43.5 ††	97.5 ††	425 ††	3440 ††	70 ††	42.5 ††				
52494	BA-31	14.1	318 †	7.45	41.8	730	5710	4.21	0.925	2.14	1.6	5.38	4.16

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Nitrogen (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	CA-37	3.34	1.74	3.28	2.73	2.71	2.8	1.01	1.64	3.86	1.83	2.43	0.833
8888	CA-37	3.45	1.79	3.3	2.72	2.56	2.69	1.02	1.67	4.07	1.99 †	2.42	0.989 ††
10156	CA-37					2.77	2.87	1.03	1.7	4.06	1.91	2.52	0.886
10173	CA-37	3.24 ††	1.7	3.17	2.57	2.74	2.85	1.04	1.65	3.89	1.87	2.39	0.877
10181	CA-37	3.61	1.79	3.46	2.83	2.78	2.88	1.08 †	1.73	4.07	1.93 †	2.54	0.885
10181	GF-31					2.48 †	2.43 †	0.957 ††	1.61	3.73	1.91	2.28 ††	0.811
20204	CA-37	3.42	1.72	3.35	2.67	2.65	2.7	1.02	1.6	4.06	1.88	2.5	0.88
21043	CA-37	3.61	1.81	3.43	2.76	2.8	2.9	0.996	1.7	4.07	1.91	2.48	0.872
21088	CA-37	3.52	1.74	3.33	2.72	2.72	2.8	1.01	1.66	4	1.86	2.45	0.824
21100	CA-37	3.58	1.8	3.45	2.86	2.84	2.91	1.04	1.67	4.12	1.93 †	2.55	0.894
21138	CA-37	3.55	1.77	3.27	2.59	2.53	2.59	0.79 ††	1.53	4.03	1.93 †	2.5	0.94
21190	GE-38	3.53	1.62 ††	3.09	2.65					3.96	1.87	2.22 ††	0.91
21193	GE-32	3.19 ††	1.68	3.09	2.63								
21229	GE-31	3.5	1.78	3.5	2.81	2.48 †	2.32 ††	0.91 ††	1.42 ††	3.85	1.84	2.49	0.84
21229	CA-37	3.52	1.8	3.55	2.9	2.49 †	2.5	0.96 ††	1.5 †	3.9	1.87	2.5	0.88
21230	CA-37	3.61	1.84	3.45	2.85	2.77	2.84	1.02	1.66	4.14	2.14 ††	2.74 ††	1.21 ††
21232	CA-37	3.38	1.66 †	3.33	2.63	2.48 †	2.55	1.04	1.6	3.78	1.77 †	2.38	0.82
21234	GE-32	3.23 ††	1.61 ††	3.15	2.53					3.59 ††	1.7 ††	2.21 ††	0.77 †
50004	CA-37	3.58	1.91 ††	3.38	2.72	2.67	2.73	1.06	1.57	3.84	1.89	2.47	0.893
50005	CA-37	3.6	1.77	3.5	2.76	2.59	2.63	0.996	1.55	4.14	1.86	2.48	0.819
50008	CA-27	3.53	1.75	3.36	2.75	2.75	2.87	1.04	1.68	4.03	1.86	2.47	0.833
50011	CA-37	3.53	1.82	3.39	2.72	2.68	2.7	1.04	1.6	3.91	1.84	2.44	0.882
50012	CA-37	4.09 ††	1.84	3.47	2.97 †	2.66	2.76	0.998	1.59	3.89	1.8	2.4	0.819
50014	CA-37	3.54	1.76	3.42	2.78	2.84	2.91	1.06	1.72	4.04	1.85	2.46	0.805
50017	CA-37	3.61	1.99 ††	3.58	2.94	2.88	1.15 ††	2.98 ††	2.88 ††	4.13	1.87	2.51	0.853
50018	CA-37	3.47	1.76	3.33	2.71	2.7	2.78	1.03	1.64	3.98	1.85	2.48	0.862
50020	CA-37	3.4	1.81	3.25	2.57	2.41 ††	2.53	0.97 †	1.49 †	3.74	1.77 †	2.36 †	0.94
50024	CA-37	3.59	1.89 †	3.4	2.73	2.77	2.84	1.03	1.66	4.01	1.91	2.54	0.852
50027	CA-37	3.6	1.79	3.4	2.74	2.61	2.61	1.03	1.55	3.95	1.87	2.49	0.89
50029	CA-37	3.33	1.79	3.27	2.7	2.53	2.53	1.12 ††	1.6	3.98	1.77 †	2.42	0.758 ††
50032	CA-37	3.32 †	1.73	3.12	2.42 ††	2.56	2.6	1.05	1.55				
50037	CA-37	3.48	1.77	3.34	2.73	2.71	2.77	1.03	1.64	3.96	1.86	2.47	0.861
52283	CA-37					2.74	2.81	1.06	1.64	3.95	1.9	2.48	0.863
52384	CA-37									3.75	1.8	2.34 †	0.85
52387	CA-37	3.43	2.34 ††	3.56	3.85 ††	3.42 ††	2.39 †	1.02	1.48 ††	3.91	1.85	2.43	0.928
52427	GF-31					2.5 †	2.2 ††	0.971 †	1.63				

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Nitrogen (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52491	CA-37	3.56	1.77	3.41	2.71	2.7	2.75	1.62 ††		4.01	1.87	2.46	0.842
52494	CA-37	3.34	1.69	3.27	2.59	2.65	2.68	0.996	1.59	3.87	1.79 †	2.36 †	0.79
52495	CA-37	3.38	1.76	3.16	2.58	2.75	2.82	1.04	1.66	3.94	1.84	2.5	0.904
52543	CA-37	3.49	1.82	3.42	2.84					4.04	2.02 ††	2.51	0.895
52565	CA-37	3.55	1.37 ††	3.69 ††	2.95 †	2.85	2.93	1.03	1.7	2.85 ††	4.29 ††	2.5	0.85

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Phosphorus (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	0.301	0.352	0.271	0.496	0.376	0.733	0.089	0.372	0.294	0.282	0.149	0.174
8888	DE-23	0.291	0.333	0.254	0.463	0.397 †	0.752	0.095	0.396 ††	0.31	0.295	0.156	0.184
10156	GI-23	0.291	0.341	0.268	0.471	0.348	0.656	0.086	0.329	0.257	0.26	0.142	0.161
10173	DN-24	0.295	0.329	0.262	0.461	0.383	0.809	0.0904	0.354	0.292	0.264	0.155	0.168
10181	GF-31	0.28	0.347	0.262	0.48	0.342	0.69	0.089	0.36	0.299	0.293	0.148	0.178
11079	DE-23	0.283	0.329	0.257	0.464	0.347	0.665	0.095	0.335	0.274	0.266	0.141	0.164
20204	GJ-23	0.314 †	0.342	0.235 †	0.587 ††	0.34	0.647	0.187 ††	0.337	0.265	0.258	0.139	0.14 ††
21043	GJ-23	0.273	0.332	0.249	0.442	0.35	0.684	0.08	0.348	0.294	0.284	0.145	0.174
21088	DE-23	0.263 †	0.323	0.246	0.431	0.349	0.702	0.085	0.321	0.285	0.275	0.152	0.18
21100	DE-24	0.281	0.338	0.254	0.474	0.36	0.766	0.0904	0.358	0.296	0.281	0.149	0.175
21138	DE-23	0.297	0.345	0.271	0.515	0.363	0.745	0.0871	0.367	0.31	0.3	0.16	0.19 ††
21178	DE-23	0.26 †	0.306 ††	0.235 †	0.406 ††	0.306 †	0.578	0.077	0.285 ††	0.25	0.241 †	0.133 †	0.153
21190	GE-30	0.266	0.315 †	0.217 ††	0.455					0.291	0.277	0.14	0.164
21193	GJ-30	0.28	0.34	0.26	0.48								
21229	GI-23	0.291	0.345	0.266	0.466	0.346	0.654	0.0858	0.306	0.279	0.271	0.146	0.169
21230	DE-23	0.245 ††	0.301 ††	0.219 ††	0.417	0.327	0.625	0.0805	0.328	0.249	0.242 †	0.129 ††	0.152
21232	DE-23	0.281	0.33	0.29 ††	0.48	0.33	0.66	0.08	0.33	0.28	0.26	0.15	0.17
21234	GE-30									0.24 ††	0.28	0.16	0.16
50004	DE-23	0.275	0.273 ††	0.241	0.435	0.372	0.759	0.082	0.32	0.293	0.27	0.137	0.159
50005	GJ-23	0.292	0.342	0.268	0.489	0.368	0.719	0.0891	0.376	0.294	0.294	0.155	0.176
50008	GJ-23	0.289	0.344	0.271	0.482	0.365	0.698	0.087	0.363	0.281	0.275	0.147	0.17
50011	DE-23	0.306	0.354	0.273	0.495	0.343	0.667	0.083	0.341	0.296	0.29	0.153	0.174
50012	DN-23	0.295	0.358	0.272	0.489	0.357	0.707	0.0865	0.348	0.281	0.286	0.15	0.17
50014	DE-23	0.301	0.333	0.264	0.467	0.373	0.741	0.087	0.36	0.278	0.27	0.143	0.16
50017	DE-23	0.259 †	0.306 ††	0.233 ††	0.427	0.348	0.622	0.098 ††	0.318	0.286	0.273	0.149	0.172
50018	DE-23	0.284	0.334	0.26	0.486	0.366	0.773	0.083	0.363	0.286	0.278	0.149	0.174
50020	GI-23	0.286	0.349	0.258	0.453	0.333	0.554 †	0.0677 ††	0.271 ††	0.31	0.3	0.16	0.18
50024	GJ-23	0.29	0.336	0.26	0.467	0.355	0.709	0.086	0.34	0.271	0.27	0.148	0.163
50025	GJ-23	0.298	0.36	0.258	0.488	0.36	0.687	0.07 ††	0.335	0.284	0.277	0.146	0.18
50027	DN-23	0.294	0.334	0.26	0.454	0.366	0.736	0.0891	0.325	0.284	0.259	0.148	0.173
50029	AD-23	0.314 †	0.351	0.292 ††	0.447	0.307	0.397 ††	0.085	0.303	0.243 †	0.24 †	0.141	0.167
50032	DE-30	0.28	0.332	0.29 ††	0.46	0.34	0.66	0.08	0.34				
50037	DE-23	0.286	0.338	0.261	0.489	0.368	0.771	0.084	0.362	0.284	0.28	0.148	0.172
52283	GJ-23	0.284	0.344	0.267	0.483	0.374	0.74	0.087	0.349	0.28	0.28	0.148	0.173
52384	DE-23									0.27	0.26	0.14	0.16
52387	DE-30	0.27	0.3 ††	0.24	0.39 ††	0.27 ††	0.55 ††	0.08	0.26 ††	0.266	0.261	0.154	0.159
52427	GF-31					0.341	0.654	0.085	0.349				

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Phosphorus (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52491	GI-23	0.286	0.337	0.253	0.444	0.343	0.648	0.0817	0.335	0.268	0.258	0.141	0.163
52494	GG-23	0.272	0.308 ††	0.244	0.432	0.344	0.674	0.084	0.331	0.269	0.255	0.14	0.164
52495	GI-24	0.287	0.345	0.256	0.471	0.373	0.77	0.0894	0.349	0.279	0.274	0.147	0.172
52565	DE-23	0.296	0.349	0.265	0.483	0.382	0.721	0.094	0.356	0.285	0.264	0.152	0.173

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Potassium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	2.71	2.38	1.49	0.908	2.3	8.52	0.983	0.267	0.954	0.387	1.04	1.75
8888	DE-23	2.61	2.26	1.43	0.855	2.45	8.14	1.05 ††	0.296	0.963 †	0.376	1.01	1.74
10156	GI-23	2.37	2.13	1.4	0.878	2.27	7.89	0.908	0.291	0.819	0.37	0.89	1.49
10173	DN-24	2.44	2.21	1.36	0.815	2.32	8.96	0.945	0.255	0.979 †	0.373	1	1.64
10181	GF-23	2.65	2.35	1.5	0.9	2.25	8.06	0.969	0.269	0.996 ††	0.391	1.05	1.79 †
11079	DE-23	1.96 ††	1.73 ††	0.93 ††	0.716 †	1.74 ††	7.09	5.25 ††	1.95 ††	0.693 ††	0.253 ††	0.576 ††	1.25 ††
20204	GJ-23	2 ††	1.76 ††	1.02 ††	0.589 ††	1.9	6.88	0.961	0.193	0.571 ††	0.232 ††	0.761 ††	1.35 ††
21043	GJ-23	2.63	2.31	1.38	0.813	2.18	8.36	0.893	0.254	0.929	0.375	0.981	1.66
21088	DE-23	2.32	2.13	1.34	0.809	2.09	8.19	0.926	0.244	0.892	0.373	0.974	1.64
21100	DE-24	2.77 †	2.5 ††	1.52 †	1.04 ††	2.3	9.16 ††	1.04 ††	0.272	1.07 ††	0.421 †	1.06	1.88 ††
21138	DE-23	2.49	2.1	1.4	0.869	2.14	8.5	0.882	0.251	0.795	0.323	0.86	1.45 †
21178	DE-23	2.65	2.33	1.48	0.888	2.04	7.59	0.834 †	0.231	0.833	0.343	0.916	1.61
21190	GE-09	2.25	2.02	1.23 †	0.708 ††					1.04 ††	0.311	0.999	1.92 ††
21193	GJ-11	2.46	2.19	1.48	0.87					0.858	0.332	0.701 ††	1.53
21229	GI-23	2.44	2.21	1.39	0.853	2.1	7.49	0.927	0.234	0.879	0.349	0.959	1.64
21230	DE-23	2.25	2.05	1.28	0.777	1.84	7.12	0.788 ††	0.213	0.85	0.352	0.919	1.55
21232	DE-23	2.52	2.3	1.65 ††	0.92	2.08	7.36	0.95	0.23	0.85	0.33	0.85	1.52
21234	GH-20	3 ††	2.64 ††	1.73 ††	1.05 ††					0.95	0.45 ††	1.03	1.64
50004	DE-23	2.44	1.96	1.35	0.859	2.1	8.38	0.899	0.207	0.866	0.343	0.922	1.58
50005	GJ-23	2.38	2.17	1.38	0.864	1.97	7.25	0.965	0.338 ††	0.87	0.4	1.05	1.55
50008	GJ-23	2.47	2.16	1.4	0.836	2.3	8.48	0.934	0.267	0.876	0.359	0.937	1.58
50011	DE-23	2.64	2.25	1.44	0.804	2.19	7.54	0.91	0.222	0.933	0.376	1	1.67
50012	DN-23	2.4	2.21	1.38	0.826	2.04	7.42	0.877	0.237	0.813	0.35	0.929	1.53
50014	DE-23	2.49	2.1	1.36	0.76	2.14	7.9	0.88	0.24	0.91	0.357	0.976	1.58
50017	DE-23	2.05 †	1.9 ††	1.11 ††	0.647 ††	2.1	5.58 ††	0.793 ††	0.217	0.865	0.348	0.954	1.58
50018	DE-23	2.44	2.16	1.37	0.783	2.25	7.82	0.991	0.238	0.878	0.348	1.03	1.63
50020	GI-23	2.47	2.25	1.37	0.783	2.15	7.42	0.876	0.222	0.9	0.35	0.92	1.53
50024	GJ-23	2.52	2.2	1.37	0.83	2.24	7.98	0.942	0.246	0.871	0.353	0.979	1.59
50025	GJ-23	2.57	2.28	1.45	0.87	2.15	6.04 ††	0.925	0.268	0.868	0.356	0.96	1.62
50027	DN-23	2.47	2.09	1.34	0.825	2.08	7.61	0.903	0.243	0.873	0.345	0.966	1.63
50029	AD-23	2.67	2.13	1.44	0.841	2.01	7.39	0.883	0.192	0.83	0.292 †	0.979	1.68
50032	DE-11	2.44	2.2	1.39	0.84	2.29	7.86	0.998	0.276				
50037	DE-23	2.42	2.14	1.37	0.786	2.26	7.84	0.99	0.235	0.88	0.35	1.04	1.63
52283	GJ-23	2.32	2.11	1.52 †	0.924	2.31	7.89	0.958	0.246	0.875	0.358	0.984	1.62
52384	DE-23									0.84	0.3	0.9	1.56
52387	DE-09	2.21	2.12	1.34	0.83	2.03	7.06	0.9	0.18 †	0.903	0.373	1.03	1.71

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Potassium (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52427	ZZ-23					2.05	7.1	0.92	0.235				
52491	GI-23	2.44	2.19	1.36	0.831	2.04	5.86 ††	0.921	0.186 †	0.919	0.352	0.996	1.98 ††
52494	GG-23	2.23	2.04	1.18 ††	0.63 ††	2.16	7.79	0.919	0.243	0.837	0.335	0.917	1.54
52495	GI-24	2.55	2.3	1.46	0.928	2.27	8	0.958	0.26	0.897	0.376	0.983	1.65
52565	DE-23	2.28	2.11	1.28	0.814	2.08	7.52	0.936	0.258	0.877	0.32	0.929	1.62

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Selenium (µg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-24	90.2	86.4	10.2	54.9	43.6	31.4	29.7	132	1350	773	84.7	72.5
8888	DE-24	107	124	28.8	48.2	56.8	35.5	87.6 ††	163	1410	848	103	70
10156	GI-23	1060 ††	1120 ††	737 ††	727 ††								
10173	DN-24	72.8	57.4	10.8	44.2	46.9	3.3 ††	29.3	129	1390	800	104	74
20204	GJ-23	163 ††	86	43	56	605 ††	790 ††	1370 ††	1080 ††				
21088	DE-23	590 ††	480 ††	560 ††	480 ††	929 ††	837 ††	1210 ††	461 ††				
21100	DE-24	166 ††	93.3	52.4	14.6 ††	58.3	86.3 ††	55	145	1340	868	189 ††	134 ††
21138	DE-24	89.1	73.4		51	48.4	38.1	23.1	121	1300	806	77	72
21178	DE-24	97	92	15	56	51	32	34	136	1330	805	92	78
21229	GI-24	106	158 ††	47.5	59.7	54.9	77 ††	36.9	96	1370	791	89	78.6
21230	DE-24	80.2	85.2	16.3	61.1	48.3	42.9	42.1	159	1230 ††	716 ††	73.4	59.6
50004	DE-24	80.3	99.9	44.1	48.9	60.7	119 ††	40.3	134	1060 ††	654 ††	49.8 ††	28.5 ††
50005	GJ-23	166 ††	155 ††	162 ††	116 ††	166 ††	250 ††	2080 ††	193	600 ††	433 ††	224 ††	88.4
50011	DE-24	104	121	40.3	59.2	54.8	45.3	152 ††	146	1480	901	102	83.5
50012	DN-24									1450	895	105	91
50014	DE-24	103	90	25.3	54.7	58.6	51.7	41.3	163	1460	857	97	80
50018	DE-24	53.1 ††	78.3	41.3	31.6 ††	60.5	1050 ††	20.1	27.6 ††	1410	858	53.1 ††	67.8
50020	GI-23					3540 ††	6010 ††	23200 ††		4570 ††	4390 ††	10500 ††	1460 ††
50024	GJ-24	104	127	35.1	67.5	51	60	131 ††	156	1370	826	101	79
50037	DE-24	52.4 ††	78.1	41.1	32 ††	60.2	1050 ††	19.1	26.7 ††	1410	861	52.6 ††	68.3
52495	GI-24	116	264 ††	77.8	68	67.3	89.6 ††	158 ††	191	1380	831	126 ††	77.9
52565	DE-23					15 ††	32.4	280 ††	23.1 ††	897 ††	830	211 ††	78.2

Lab. Code #	Method Codes	Plant sample identification and values for NOT ASSESSED 2018: Silicon (%Si) NOT ASSESSED											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
21088	DE-23	0.0403	0.028	0.019	0.000	0.0059	0.008	0.0399	0.00626	0.0195	0.0446 †	0.0625	0.0743
21100	DE-24	0.0494	0.133	0.039 ††	0.026 ††	0.013	0.015	0.0813	0.017	0.0237	0.0271	0.0322	0.123
21178	DE-23	0.0113	0.012	0.011	0.000	0.003	0.006	0.034	0.003	0.0029	0.0078	0.014	0.0124
50005	DE-23	0.182	0.166	0.013	0.000	0.0048	0.006	0.114	0.00751	0.00476	0.00105	0.0331	0.268 †
50008	ZZ-23	0.19	3.12 ††	0.048 ††	0.013 ††	0.017 ††	0.025 ††	0.176	0.013	0.01	0.027	0.157 ††	1.47 ††
50018	DB-31	0.101	0.145	0.016	0.010 †	0.0118	0.010	0.197	0.0135	0.0071	0.0197	0.129 †	0.15
50020	GI-23	0.01	0.010	0.006	0.001	0.003	0.004	0.011	0.003	0.02	0.02	0.03	0.08
50037	DB-31	0.102	0.148	0.016	0.010 †	0.012	0.010	0.198	0.0135	0.0071	0.0191	0.131 †	0.148
52565	DE-23	0.0256		0.017	0.003 †	0.0048	0.006	0.0692	0.00389	0.00443	0.0172	0.0746	0.099

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Sodium (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	1250	5100 †	89.5	5.03	2050	9180	196	5.52	8.18	84.6	35.8	199
8888	DE-23	1170	4760			2190	9650	210					220
10156	GI-23	1830 ††	5010	563 ††	424 ††	1980	9010	219	45.8 ††	59 ††	128 ††	84.3 ††	228
10173	DN-24	1190	5360 ††	97.6	5.91	2090	9910	199	5.5	8.89	84.6	39.5	197
11079	DE-23	1190	4810	114 †	4.14	1930	7810	256	77.4 ††	12.8	94.8	47.3	223
20204	GJ-23	460 ††	4350	160 ††	240 ††	2200	9270	330 ††	100 ††	63 ††	133 ††	105 ††	300 ††
21043	GJ-23	1080	4540	95.1	18.1 †	2020	8870	264 †	25 †	27.8 †	110 †	67.9 ††	245
21088	DE-23	1230	4920	104	14.8	2030	9350	214	9.09	24.7 †	103	53.8	230
21100	DE-24	1220	4850	96.3	7.28	1820	10100	172	4.76	6.7	85.9	32.9	188
21138	DE-23	1210	4590	85		1940	8460	170			79	36	188
21178	DE-23	1160	4450	80.7	6.7	1790	7690	170	7	8	85	46	210
21190	AD-09	1310	4750	131 ††	10.8					17.8 †	86.3	61.7 †	200
21193	GJ-11	818 ††	4260	112	50 ††					53.7 ††	142 ††	89.1 ††	246
21229	GI-23	1130	4600	79.5	2.61	1930	8550	180	10.2	10.1	89.3	38.3	209
21230	DE-23	0.119 ††	0.481 ††	0.009 ††	0.002	2040	7980	193	11.3	7.93	91.4	40.5	206
21232	DE-23	1210	4560	110	10	1580 ††	8280	140	100 ††				
50004	DE-23	1100	4310	81.1	8.79	1920	9440	173	14.1	0.737 †	6.65 ††	38.3	197
50005	GJ-23	1140	4590	87.5	5.73	2040	7970	215	17.8	23.8 †	102	59.1 †	234
50008	GJ-23	1090	4500	98.7	13.3	2120	9260	224	38.5 ††	93 ††	181 ††	138 ††	322 ††
50011	DE-23	1180	4730	87.5	5.67	1920	8290	185	4.78	8.33	91.2	40.5	205
50012	DN-23	1140	4580	80	10	1840	7940	176	5	11	81	38	189
50014	DE-23	1180	4670	90	10	1900	8620	160	25 †	10	83	10 ††	197
50017	DE-23	1310	4990	86	2.3	2040	9220	198	6.75	12.2	88.2	43.8	223
50018	DE-23	1140	4490	86.3	8.62	1990	8840	201	10.2	11.5	92.6	47.6	220
50020	GI-23	1090	4610	74.6	6.06	2700 ††	11000 ††	230			98.1		218
50024	GJ-23	1140	4540	81	3	1950	8600	184	8.2	4.3	79.6	27	197
50025	GJ-23	1270	4870	192 ††	108 ††	2300 ††	9380	265 †	16	320 ††	240 ††	300 ††	140 ††
50027	DN-23	1170	4680	78	4	1870	7900	158	10	8.2	81	40	198
50029	AD-23	1180	3870 †	104	10	1820	6630	267 †	13.6	16	74.5	126 ††	193
50032	DE-11	651 ††	2720 ††	63	10	1220 ††	688 ††	105 ††	2				
50037	DE-23	1130	4490	87.1	8.56	1990	8830	198	10.2	11.3	92.4	47.7	219
52283	GJ-23	1180	4580	91.5	18.2 †	1940	9140	180	17.9	52.2 ††	88.7	42.5	36.7 ††
52387	DE-09	931 ††	4130	62.5	12.5	1590 ††	7030	133	2	17.6 †	78.5	36.2	145 ††
52427	ZZ-23					1740	8070	169	12.2				
52491	GI-23	1170	4890	83	5.4	2180	9960	289 ††	3.9	9.92	92.5	42.1	198

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Sodium (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52494	GG-23	1510 ††	5400 ††	107	12.5	1930	8260	331 ††	14.3	22.6 †	91.3	64.8 †	244
52495	GI-24	1230	5150 †	90.8	6.29	2030	8510	209	5.16	8.18	86.5	37.6	200
52565	DE-23	1230	4360	217 ††	133 ††	1780	8500	156	35.1 ††	52.8 ††	120 ††	88.3 ††	262 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Sulphur (%w/w)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	0.202	0.27	0.281	0.185	0.776	0.287	0.2	0.148	0.189	0.136	0.248	0.115
8888	DE-23	0.19	0.247	0.257	0.168	0.844 †	0.314	0.221 ††	0.165	0.202 †	0.143	0.26	0.122
10156	GI-23	0.169	0.241	0.255	0.197	0.448 ††	0.208 ††	0.182	0.142	0.101 ††	0.088 ††	0.137 ††	0.102 †
10173	DN-24	0.182	0.231	0.249	0.163	0.762	0.315	0.197	0.14	0.19	0.131	0.248	0.114
11079	DE-23	0.185	0.24	0.258	0.168	0.687	0.252	0.185	0.128	0.205 †	0.15 †	0.27 †	0.126 †
20204	GJ-23	0.166	0.237	0.239	0.21 ††	0.67	0.264	0.196	0.135	0.144 ††	0.115 †	0.198 ††	0.1 ††
21043	GJ-23	0.18	0.246	0.253	0.165	0.74	0.275	0.187	0.144	0.201	0.147	0.257	0.123
21088	DE-23	0.169	0.228	0.238	0.151	0.702	0.276	0.191	0.129	0.18	0.131	0.243	0.111
21100	CA-37	0.212 ††	0.27	0.287	0.2 †	0.764	0.285	0.19	0.142	0.177	0.132	0.219	0.113
21138	DE-23	0.2	0.255	0.277	0.188	0.77	0.297	0.193	0.143	0.183	0.134	0.244	0.114
21178	DE-23	0.171	0.228	0.239	0.152	0.613	0.232	0.167 †	0.113	0.17	0.12	0.23	0.11
21229	GI-23	0.19	0.258	0.271	0.17	0.717	0.254	0.19	0.119	0.182	0.129	0.239	0.113
21230	DE-23	0.16	0.215 †	0.221	0.147	0.557 ††	0.206 ††	0.146 ††	0.106 ††	0.15 ††	0.11 †	0.204 †	0.0957 ††
21232	DE-23	0.18	0.236	0.29	0.18	0.68	0.26	0.18	0.13	0.18	0.13	0.24	0.11
50004	DE-23	0.18	0.205 ††	0.239	0.158	0.724	0.289	0.196	0.123	0.181	0.128	0.239	0.111
50005	GJ-23	0.184	0.246	0.264	0.174	0.749	0.292	0.207	0.148	0.195	0.146	0.257	0.118
50008	GJ-23	0.189	0.253	0.27	0.176	0.771	0.284	0.202	0.15	0.186	0.137	0.252	0.115
50011	DE-23	0.193	0.256	0.269	0.176	0.706	0.262	0.185	0.135	0.192	0.141	0.254	0.117
50012	DN-23	0.191	0.263	0.278	0.181	0.74	0.284	0.191	0.14				
50014	DE-23	0.189	0.232	0.258	0.157	0.69	0.26	0.179	0.13	0.17	0.124	0.228	0.0993 ††
50017	DE-23	7.64 ††	0.232	0.23	0.154	0.695	0.264	0.186	0.119	0.185	0.133	0.242	0.114
50018	DE-23	0.182	0.242	0.263	0.171	0.746	0.283	0.195	0.137	0.184	0.134	0.249	0.116
50020	GI-23	0.177	0.251	0.245	0.156	0.873 ††	0.292	0.213 †	0.147	0.2	0.15 †	0.26	0.12
50024	GJ-23	0.175	0.234	0.238	0.155	0.677	0.272	0.184	0.12	0.164 †	0.12	0.225	0.103 †
50025	GJ-23	0.163	0.316 ††	0.35 ††	0.27 ††	0.864 ††	0.33 †	0.259 ††	0.171 †	0.2	0.07 ††	0.141 ††	1.76 ††
50027	DN-23	0.191	0.244	0.258	0.164	0.698	0.265	0.191	0.127	0.183	0.125	0.241	0.121
50029	CA-37	0.231 ††	0.268	0.264	0.203 †	0.702	0.245	0.201	0.176 ††	0.181	0.138	0.229	0.121
50032	DE-30	0.18	0.29 ††	0.25	0.16	0.54 ††	0.31	0.24 ††	0.14				
50037	DE-23	0.181	0.243	0.262	0.17	0.748	0.282	0.195	0.138	0.186	0.135	0.248	0.117
52283	GJ-23	0.185	0.249	0.27	0.169	0.776	0.295	0.203	0.143	0.184	0.133	0.247	0.114
52384	DE-23									0.15 ††	0.11 †	0.25	0.11
52427	ZZ-23					0.687	0.256	0.187	0.14				
52491	GI-23	0.18	0.248	0.253	0.167					0.181	0.132	0.24	0.116
52494	GG-23	0.17	0.216	0.234	0.152	0.692	0.264	0.183	0.129	0.169	0.122	0.225	0.106
52495	CA-37	0.188	0.254	0.265	0.174	0.8	0.243	0.261 ††	0.131				
52565	DE-23					0.794	0.526 ††	0.52 ††	0.47 ††	0.192	0.132	0.278 †	0.126 †

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Zinc (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
22	DE-23	32.3	56.7	127	38.2	26.8	21.7	14.6	22.9	40.3	19.9	31.1	35.2
8888	DE-23	31.3	51.5	115	35.8	28.7	23.4	15.9	24.6	40	20.5	31.5 †	36.2
10156	GI-23	12.5 ††	40 ††	107	19.4 ††	23.4	19.6	17.2 ††	18.6	34.6	18	26.8 †	31.3
10173	DN-24	30.5	52.5	118	36.7	27.5	23.9	13.4	22.2	38.6	18.3	29.5	34.8
11079	DE-23	31.5	56.1	109	36.5	26	21.3	14.9	21.1	39.7	20.2	32.2 ††	36.5
20204	GJ-23	37.3 ††	51.5	98	47.1 ††	24.9	16.8	11.7	20.8	40.7	26.5 ††	29.6	37.1
21043	GJ-23	26 †	48.3	102	32.9	25.5	18	12.3	20.3	37.3	18.6	27.7	32
21088	DE-23	27.2	49.7	112	32.8	24.6	19.6	13.5	18.8	38.9	19.3	29.7	35
21100	DE-24	28.4	50.2	107	34.5	24.6	21.4	14.6	20.8	36.4	18.2	28.5	33.5
21138	DE-23	31.5	52.7	117	36.7	26.6	22.5	14.4	22.9	37.3	18.8	29.7	33.7
21178	DE-23	29.2	50.8	114	33.1	22.8	21.1	12.9	17.9	35.2	18.1	27.8	32.7
21190	AD-13	30.8	47.5	119	35.2					36.5	18	30.6	33.8
21193	GJ-11	31.2	50.5	112	38.2					38.8	21.3	29.4	36.4
21229	GI-23	29.5	52.6	111	36.3	24.3	18.9	13.3	18.5	38.1	19.1	28.2	34.3
21230	DE-23	26.3	47.2	102	31.4 †	21.3 †	16.7	11.3	17.8	31.2 ††	15.8 ††	24.3 ††	28.4 ††
21232	DE-23					23.9	19.6	13.3	19.6				
21234	GH-09	34.3 †	59.9 †	135 ††	39 †					33.9 †	15.7 ††	26.6 ††	31.7
50004	DE-23	30.5	43.7 †	106	36.4	27.5	23	13.2	20.8	35.7	18.2	28.8	34.3
50005	GJ-23	14.7 ††	50.9	98.3	30.4 †	25.2	22.9	16.1	24.2	37.8	20.1	29	33.7
50008	GJ-23	29.5	52.4	114	35.9	25.7	20.6	14.2	22.4	36.6	18.9	28.7	31.8
50011	DE-23	30.3	52.2	112	35.8	23.6	19.3	13.3	20.3	37.9	19.7	29.6	34
50012	DN-23	30.7	55	120	37.6	25.5	21.3	13.8	20.7	36.6	19.1	29.6	32.6
50014	DE-23	31.3	55.2	114	34	25.1	21.1	13.4	20.4	35.9	18	28.3	30.8
50017	DE-23	26.1 †	45.3 †	93.4 ††	30.9 †	24.3	21	12.9	19.3	36.8	18.7	29.5	32.8
50018	DE-23	28.8	50.4	118	35.4	25.6	20.5	13.4	21.7	37.7	19.3	28.3	34.5
50020	GI-23	25.2 ††	46.2	98.9	30.3 †	28.5	20.4	14.7	21.2	42.3 ††	21.2	29.9	34.4
50024	GJ-23	30	51.3	115	36	27.6	22.7	14.9	22.7	38.1	19.7	29.6	32
50025	GJ-23	28.2	54	92.4 ††	36.4	24.8	20.3	11.4	22.9	40.6	18.9	28	33.9
50027	DN-23	29.2	54.4	107	35	24	19.3	13.1	19.7	37.4	18.3	27.8	33.2
50029	AD-23	32.9	36.8 ††	117	41.3 †	26.4	9.02 ††	14	22	40.9 †	21.5 †	29.8	31.1
50032	DE-11	30.4	54.2	113	35.5	30.3 ††	22.8	15.8	20.3				
50037	DE-23	28.8	50.1	117	35.4	25.5	20.4	13.5	21.9	37.7	19.4	28.5	34.4
52283	GJ-23	44.7 ††	52	120	36.3	27.7	22.5	14.7	20.4	37.9	19	28.8	34
52384	DE-23									37.5	21.9 ††	29.4	35.8
52387	DE-09	27.2	46.6	105	30.7 †	26	20.2	13.6	17.3	33.8 †	17.8	127 ††	32.5
52427	ZZ-23					23.6	19.4	14.3	22.2				
52491	GI-23	28	46	99	31 †	24	19	14	20	34.9	17.6	26.6 ††	30.1

Lab. Code #	Method Codes	Plant sample identification and values for 2018: Zinc (mg/kg)											
		February 2018 (Round 2)				*May 2018 (Round 5)*				*August 2018 (Round 8)*			
		ASP 1802-1	**ASP 1802-2**	**ASP 1802-3**	**ASP 1802-4**	**ASP 1805-1**	**ASP 1805-2**	**ASP 1805-3**	**ASP 1805-4**	**ASP 1808-1**	**ASP 1808-2**	**ASP 1808-3**	**ASP 1808-4**
52494	GG-23	30.3	49.4	102	32.1 †	22.8	18.8	12.9	19.2	33.2 †	16.6	26.2 ††	30.4
52495	GI-24	30	52.7	114	36.1	26.2	22	14.7	21.3	36.7	18.9	29.1	34.1
52565	DE-23	49.3 ††	103 ††	194 ††	56.9 ††	29.8 †	23.3	15.7	23.6	42.5 ††	21.7 †	31.2	38.7 ††