Australasian
Soil and Plant
Analysis Council Inc.

ASPAC PLANT PROFICIENCY TESTING PROGRAM REPORT

2014-15

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April 2017

ISSN # 1446-3598

An appropriate citation for this report is:

Sparrow, L.A., Lyons, D.J., Rayment, G.E. and Hill, R.J. (2017). *ASPAC Plant Proficiency Testing Program Report 2014-15.* 49 + vi pp. ASPAC, Melbourne, Victoria.

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Foreword

This ASPAC annual report is the eleventh 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 36 participants in October 2014, in February 2015 and in May 2015. 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

Mr Lyndon Palmer (South Australia) is thanked for helping to identify and quantify random Co, Cu and occasionally Fe contamination in circulated plant samples. We also thank Mr Alan Jeffrey (Queensland) and staff at Hill Laboratories (New Zealand) for their analytical efforts to help discover occasional plant sample contamination during preparative stages. Those commissioned by GPL to confirm that test plant samples were homogenous prior to circulation for proficiency testing purposes (e.g., DSITI, Queensland, Australia) are also acknowledged, as are operational staff of GPL.

Membership of ASPAC Laboratory Proficiency Committee 2016

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† Dr Sparrow joined the Committee on 10 August 2015.

Service Provider Details 2016

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

Contents

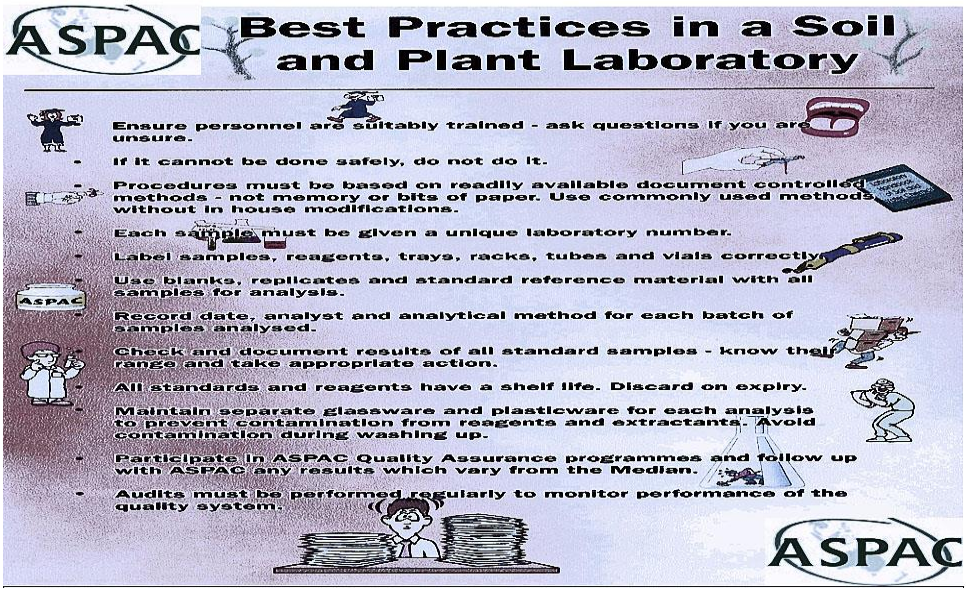
Notes on ASPAC Method-specific Certification: *what it is and what it is not*

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 method-specific, as each method (or elemental test) is assessed separately using internationally-respected non-parametric statistics. Obviously, the peer review process is strongest for methods/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 method/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, 22 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, and the interpretation of test results for clients are other areas that affect the final outcome of soil and plant chemical testing for diagnostic purposes. For helpful guidelines on these topics, refer to publications by Brown (1994)[1], Peverill *et al*. (1999)[2], Rayment (2006)[3] and Reuter and Robinson (1997)[4]. The following "poster", prepared by ASPAC, was designed for within-laboratory use.



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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 2014-15 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. For historical details on earlier annual 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, method-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 2014-15. 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 ASPAC-LPC had responsibility to implement and resolve matters of policy and to provide guidance on technical matters specific to plant chemical testing both to GPL and to laboratory participants. The ASPAC-LPC also undertook statistical checks and other actions for quality control purposes, participated in a Technical Advisory Group operated jointly with GPL, and contributed to training workshops. Laboratory managers and staff of those who contributed to this annual program are encouraged to seek help from ASPAC if they are shown to be operating at levels of measurement performance below their peers. Appropriate contacts are members of the ASPAC-LPC and/or State representatives of ASPAC (or equivalent).

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

2.2 Plant program participation

Some 36 laboratories [26 from Australia, 1 from Fiji, 8 from New Zealand, 1 from Papua New Guinea] participated in the ASPAC plant ILPP in 2014-15, but numbers of reported results varied by "round" and plant test (see Table 1). The counts for each test element 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 2014-15. Participants were invited to analyse each sample using methods normally employed in their laboratory. Tests commonly performed are documented in Table 1, noting that participant numbers for each element and "round" are also listed. Laboratories were not required to submit results for every one of these tests, although a minimum of seven participating laboratories per "round" were required for any one test to permit meaningful statistical analyses. In addition, Table 1 includes concentration ranges (minimum, median, maximum) for each element across the 12 samples, noting that those concentration ranges

derive from “final” populations after removal of “stragglers” and “outliers”. For 18 of the 22 plant tests, the population average concentration for a given element was greater than corresponding medians (average values not presented), while for the other 4 tests (B, N, P, K) the average was less than the median. Moreover, only 3 grand median concentrations were lower than their 2013-14 counterparts, 9 were much the same, and 10 were higher, suggesting final robust %CVs might be slightly lower for this program year than occurred in 2013-14.

Table 1. Plant tests, elemental symbols, units, the arithmetic average numbers of results per round submitted by participating laboratories in the ASPAC 2012-13 Plant ILPP, plus the concentration ranges and the final grand median concentration for all 22 tests.

2014-15 Plant tests	Symbol	Units	Average Number of participants			Concentration ranges (final) by test across 12 samples, as reported by labs		
			Oct 14	Feb 15	May 15	Minimum	Median	Maximum
Aluminium	Al	mg/kg	25	27	26	4	109	3100
Boron	B	mg/kg	29	30	28	0.909	20.2	46.7
Cadmium	Cd	µg/kg	12	14	13	4.83	47.8	926
Calcium	Ca	%	34	36	34	0.01	0.827	2.37
Carbon	C	%	23	21	24	37	43.4	51
Chloride	Cl	mg/kg	24	22	22	301	3715	36100
Cobalt	Co	µg/kg	15	18	17	9.34	80.3	2960
Copper	Cu	mg/kg	34	33	34	2.5	7.10	51.1
Iron	Fe	mg/kg	34	33	33	24.4	137	3600
Lead	Pb	µg/kg	12	12	13	15	141	344
Magnesium	Mg	%	35	36	34	0.105	0.218	1.11
Manganese	Mn	mg/kg	34	33	34	14.9	77.9	337
Molybdenum	Mo	µg/kg	15	17	17	64.5	489	1650
Nitrate-N	NO_3-N	mg/kg	15	14	16	1.3	28.7	2840
Nitrogen	N	%	32	34	35	0.998	2.70	3.47
Phosphorus	P	%	35	36	34	0.062	0.260	0.364
Potassium	K	%	35	34	34	0.212	2.17	4.85
Selenium	Se	mg/kg	11	14	14	20	60.2	831
Silicon	Si	%	6	7	7	0.01	0.047	0.123
Sodium	Na	%	33	34	34	0.001	0.078	2.37
Sulfur	S	%	30	32	31	0.086	0.197	0.751
Zinc	Zn	mg/kg	34	35	33	8.98	26.5	77.6

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

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

2.4 Sample preparation and identification

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

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 2014-15 program were distributed and coded as follows: October 2014: ASP 1410-1 to 1410-4; February 2015: ASP 1502-1 to 1502-4; and May 2015: ASP 1505-1 to 1505-4. This is a new coding system, where 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. Six of 12 test plant samples were sourced from Australia, 5 from New Zealand and one from Vietnam.

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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 2014-15 ASPAC plant ILPP.

Sample ID	*Round ID*	*Sample Type*	*Origin*
ASP 1410-1	**114**	Pea Straw	Australia
ASP 1410-2		Brown Rice Grain	NZ
ASP 1410-3		Kaffir Lime Leaves	Australia
ASP 1410-4		Cabbage Head	Vietnam
ASP 1502-1	**314**	Beetroot Leaves	NZ
ASP 1502-2		Bay Leaves	Australia
ASP 1502-3		Maize Leaves	NZ
ASP 1502-4		Vetch Hay	Australia
ASP 1505-1	**514**	Tasmanian Blackwood Leaves	NZ
ASP 1505-2		Carrot Foliage	NZ
ASP 1505-3		Rhodes Grass Hay	Australia
ASP 1505-4		Barley Grain	Australia

2.5 Data analysis and periodic reporting

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

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

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

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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, a newsletter from GPL occasionally went to all participating laboratories. Its main purpose was to assist in the interpretation of interim reports. Also included in GPL’s newsletter was information about upcoming events and operational administration of the program.

Laboratories that participated in the 2014-15 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 equals 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 method / 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 2014-15.

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

ASPAC's *Certificates of Proficiency* are only issued on completion of each annual program of three "rounds". Nowadays, ASPAC provides details of certified laboratories by test on its public web site. Certifications obtained in the 2014-15 Plants' program remained valid until superseded by findings from the following 2015-16 ILPP.

3. Summary Statistics

This section provides summary information and data (sometimes rounded only for table formatting purposes) on a test-by-test basis (alphabetical) for each of the 12 samples used across three "rounds" in 2014-15. 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.

2014-15: Aluminium (mg Al/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	25	25	25	25	27	27	27	27	26	26	26	25
Minimum i	109	5.19	49.7	12.9	633	72.2	65.8	70.7	36.4	657	199	0.621
Maximum i	334	31.1	242	59.5	2020	172	164	175	102	1150	4040	142
Median i	236	16.4	185	21.9	1030	116	97.8	102	54.3	865	3100	4.7
Mean i	239	17.1	177	23.3	1030	118	100	105	55.4	862	3000	11.3
MAD i	29	3.1	20	3.3	50	9	4.8	12	7	41	220	3.19
IQR i	71	5.5	37	6.1	111	20.5	9.3	21.3	14.1	77	503	7.7
Robust CV% i	22	25	15	21	8	13	7	15	19	7	12	121
Median f	237	16.1	186	21.1	1030	116	97.7	101	52.1	874	3100	4
Mean f	245	16	188	21.2	1020	118	98	100	52.4	865	3130	5.34
MAD f	28.5	2.5	19	3	44.5	8	2.8	11	6.3	43	205	2.49
IQR f	66.3	4.3	35	5.95	77.8	19	5.15	22	12.4	71	350	6.4
Robust CV% f	21	20	14	21	6	12	4	16	18	6	8	119
Outliers	1	3	2	2	5	2	4	2	2	3	4	2
Stragglers	0	1	1	0	0	0	3	0	0	0	0	0

2014-15: Boron (mg B/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	28	28	29	29	30	30	30	30	29	29	28	27
Minimum i	16.3	0.181	37.9	12.9	13	14.4	10.3	20.1	18.5	27.7	0.001	0.133
Maximum i	66.8	18.7	77.1	23.5	35.3	28.1	20.7	32.9	60.4	114	21.5	5.86
Median i	23	1.29	46.7	15.5	21.7	18.5	15.6	25	22.3	31.9	7.31	0.979
Mean i	26.2	2.19	47.3	16.1	21.8	18.9	15.4	25.3	23.2	34.9	9.01	1.37
MAD i	1.1	0.553	1.9	0.8	1.25	1.05	0.8	1.05	1.2	1.1	1.14	0.361
IQR i	2.4	1.23	3.5	1.4	2.38	2.13	1.63	2.15	3	2.1	3.74	0.724
Robust CV% i	8	71	6	7	8	9	8	6	10	5	38	55
Median f	22.8	0.942	46.7	15.2	21.9	18.4	15.6	25	22.3	31.9	6.99	0.909
Mean f	23	1.17	46.5	15.3	22	18.6	15.5	25	21.9	32	7.01	0.825
MAD f	0.9	0.435	1.7	0.7	1.1	1.1	0.6	0.7	1.2	1	0.54	0.262
IQR f	1.8	0.928	2.7	1.3	2.13	1.7	1.08	1.45	2.93	2.1	0.958	0.394
Robust CV% f	6	73	4	6	7	7	5	4	10	5	10	32
Outliers	5	4	4	3	2	3	6	4	1	4	8	5
Stragglers	0	1	0	1	2	0	2	3	0	0	2	0

2014-15: Cadmium (µg Cd/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	12	12	11	12	14	14	14	13	13	13	13	13
Minimum i	9.87	37	6.03	16	489	84.7	0.001	0.001	10	438	2.34	0.01
Maximum i	407	220	171	249	1220	564	222	78.1	54.6	651	203	40
Median i	237	52.7	16.6	44.5	892	398	116	39.4	16	598	43	6
Mean i	236	65.7	32.6	63.9	890	378	112	36.9	19.4	576	56.5	8.81
MAD i	23	11.3	5.1	5.6	104	37	6.5	8.1	2.7	22	6.7	4
IQR i	48.3	19	9.95	10.9	184	65.8	11	9.5	4.2	35	18.4	6.53
Robust CV% i	15	27	44	18	15	12	7	18	19	4	32	81
Median f	237	50.6	15	44	926	412	116	45	15.2	599	42.2	4.83
Mean f	241	51.6	15.8	45.5	921	396	117	43.7	15.5	600	45.2	6.21
MAD f	20.5	10.2	3.3	3.7	103	40	1	5.6	1.8	21	4.3	3.7
IQR f	36.8	16.5	5.6	4.5	186	50.5	1.5	8.6	3	43	12.9	6.65
Robust CV% f	11	24	28	8	15	9	1	14	15	5	23	102
Outliers	2	1	2	3	1	2	5	4	2	2	3	1
Stragglers	0	0	0	0	0	1	3	0	0	0	0	0

2014-15: Calcium (%Ca)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	34	34	34	34	35	35	36	36	34	34	34	33
Minimum i	0.737	0.008	1.29	0.469	1.09	0.08	0.281	0.43	0.498	1.71	0.05	0.009
Maximum i	1.23	0.027	1.75	0.61	2.57	1.16	0.922	0.923	3.89	8.39	2.58	0.11
Median i	1.05	0.011	1.57	0.543	2.12	0.971	0.749	0.76	0.893	2.36	0.511	0.031
Mean i	1.04	0.013	1.57	0.541	2.11	0.937	0.75	0.757	0.97	2.52	0.555	0.034
MAD i	0.055	0.002	0.05	0.024	0.1	0.04	0.028	0.014	0.029	0.075	0.016	0.001
IQR i	0.098	0.005	0.098	0.046	0.175	0.068	0.054	0.03	0.062	0.138	0.032	0.002
Robust CV% i	7	32	5	6	6	5	5	3	5	4	5	5
Median f	1.04	0.01	1.56	0.543	2.12	0.971	0.746	0.76	0.893	2.37	0.511	0.031
Mean f	1.04	0.0103	1.57	0.541	2.13	0.974	0.747	0.758	0.894	2.37	0.511	0.031
MAD f	0.03	0.001	0.05	0.024	0.09	0.037	0.02	0.007	0.022	0.04	0.011	0.001
IQR f	0.065	0.001	0.09	0.046	0.145	0.063	0.036	0.009	0.042	0.068	0.019	0.002
Robust CV% f	5	8	4	6	5	5	4	1	4	2	3	5
Outliers	2	5	3	0	4	6	9	13	5	3	7	11
Stragglers	1	6	0	0	0	0	0	1	1	7	1	0

2014-15: Carbon (%C)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	23	23	23	23	21	21	21	21	24	24	24	24
Minimum i	42.4	40	42.5	38.2	34.8	45.7	40.2	40.4	35.9	32.1	33.7	29.1
Maximum i	47.7	46.6	46.1	43.9	41.2	51.1	45	46.4	55.8	49.7	43.3	48.1
Median i	45.2	43.1	44.7	41	37	49.7	43.1	44.1	50.9	40	40.3	43.7
Mean i	45	42.9	44.5	40.8	37.1	49.4	43.2	44.1	50.2	40.1	40	43.1
MAD i	0.7	1.1	0.4	0.6	0.5	0.4	0.4	0.5	0.7	0.35	0.4	0.7
IQR i	1.4	2	0.95	1.3	0.9	0.6	0.9	0.9	1.28	0.75	0.95	1.43
Robust CV% 1	2	3	2	2	2	1	2	2	2	1	2	2
Median f	45.2	43.1	44.7	41.1	37	49.8	43.1	44.2	51	40.1	40.4	43.7
Mean f	45	42.9	44.7	40.9	37	49.9	43.3	44.3	50.9	40.1	40.4	43.5
MAD f	0.7	1.1	0.3	0.5	0.4	0.2	0.4	0.4	0.2	0.15	0.25	0.65
IQR f	1.3	2	0.65	1	0.725	0.55	0.8	0.8	0.45	0.3	0.5	1.23
Robust CV% f	2	3	1	2	1	1	1	1	1	1	1	2
Outliers	2	0	4	2	2	3	4	3	5	7	7	4
Stragglers	0	0	0	1	1	3	0	0	4	3	1	0

2014-15: Chloride (mg Cl/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	24	24	24	24	22	22	22	22	22	22	22	22
Minimum i	0.15	0.05	0.05	0.35	29500	181	1830	4000	0.4	1.95	1.15	0.1
Maximum i	2530	735	3150	7200	53800	6490	6580	9140	7020	31400	15600	1780
Median i	1580	301	791	4220	36100	742	3220	5410	5140	26000	13600	1180
Mean i	1620	307	1260	4090	36100	1240	3430	5770	5060	25200	13000	1150
MAD i	170	65.5	220	295	700	212	230	205	215	900	250	135
IQR i	430	137	1450	518	1580	724	465	535	403	1780	450	253
Robust CV% i	20	34	136	9	3	72	11	7	6	5	2	16
Median f	1510	301	745	4230	36100	599	3200	5390	5130	25800	13600	1170
Mean f	1530	309	740	4240	36000	615	3260	5390	5090	25800	13600	1170
MAD f	40	32	60.5	150	100	99	100	135	90	700	100	80
IQR f	97.5	51.3	110	228	400	169	188	265	180	1250	250	170
Robust CV% f	5	13	11	4	1	21	4	4	3	4	1	11
Outliers	6	5	8	4	6	5	4	5	5	3	6	4
Stragglers	4	3	2	2	3	2	2	1	3	1	1	1

2014-15: Cobalt (µg Co/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	15	15	15	15	18	18	18	18	16	18	18	17
Minimum i	2.1	10.3	38.2	23.4	103	8.17	10	91.5	0.01	0.16	3.1	0.01
Maximum i	357	161	210	137	205	139	75.7	190	44.5	168	3360	133
Median i	128	36	84	56.3	177	79.5	50	161	25.9	151	2830	10.1
Mean i	134	47.4	92.4	62	169	79.3	45.3	155	25.5	139	2560	20.9
MAD i	17	4.5	21.2	5.6	11.5	6.6	4.15	10	8.25	10	215	3.17
IQR i	30.5	13.8	37.5	11.1	21.3	10.9	12.8	20	16.1	20.3	575	5.59
Robust CV% i	18	28	33	15	9	10	19	9	46	10	15	41
Median f	128	35.3	80.6	55.2	179	80	52.2	163	25.9	154	2960	9.34
Mean f	126	34.8	77.3	54.5	177	81.3	51.8	162	25.5	153	2900	9.76
MAD f	10	1.8	17.8	3.5	9	4	1.6	9.5	8.25	8	160	2.19
IQR f	20	3.93	29.1	7.1	18.5	7.7	3.1	17.8	16.1	16	250	3.29
Robust CV% f	12	8	27	10	8	7	4	8	46	8	6	26
Outliers	2	5	2	4	2	4	5	2	0	3	3	4
Stragglers	2	0	0	0	0	1	2	0	0	0	1	1

2014-15: Copper (mg Cu/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	34	34	34	34	33	33	33	33	34	34	34	34
Minimum i	1.6	0.072	34.1	2.22	6.98	5.6	2.06	3.71	4.21	12.3	2.52	0.368
Maximum i	77.4	3.97	60.4	50.6	38.9	8.12	13.5	7.53	24.4	31	33	24.5
Median i	2.72	2.49	51.1	3.16	27	6.7	11	6.04	7.54	15.6	9.24	5.73
Mean i	5	2.36	50.8	4.6	26.6	6.69	10.5	5.96	7.96	16.1	9.64	6.09
MAD i	0.24	0.225	2.4	0.25	1	0.24	0.5	0.3	0.5	0.75	0.65	0.3
IQR i	0.46	0.398	4.33	0.458	2	0.43	1.1	0.67	0.793	1.55	1.16	0.698
Robust CV% i	13	12	6	11	5	5	7	8	8	7	9	9
Median f	2.67	2.5	51.1	3.13	27.2	6.71	11	6.05	7.48	15.6	9.23	5.73
Mean f	2.66	2.5	51.1	3.12	27.1	6.7	10.9	5.99	7.33	15.6	9.1	5.71
MAD f	0.205	0.2	2.3	0.17	1	0.155	0.35	0.275	0.41	0.6	0.56	0.24
IQR f	0.388	0.36	3.98	0.29	1.8	0.303	0.75	0.468	0.75	1.18	1	0.48
Robust CV% f	11	11	6	7	5	3	5	6	7	6	8	6
Outliers	6	5	2	8	4	6	6	4	4	3	3	5
Stragglers	0	0	0	1	0	3	1	1	1	1	2	1

2014-15: Iron (mg Fe/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	34	34	34	34	33	33	33	33	33	33	33	33
Minimum i	142	6.42	25.9	53.5	198	70.4	92.8	91.2	50.2	280	223	15.5
Maximum i	1870	495	184	129	638	227	218	185	2330	1180	4960	163
Median i	311	24.7	155	82.4	459	115	136	135	68.7	488	3520	49
Mean i	425	39.7	149	81.9	456	119	140	134	139	504	3230	52.3
MAD i	45.5	2.35	14	6.25	32	10	9	8	5.1	31	390	3.4
IQR i	86.5	4.7	25	12.3	68	15	20	15	9.1	50	750	6.8
Robust CV% i	21	14	12	11	11	10	11	8	10	8	16	10
Median f	305	24.4	158	84.2	461	115	136	138	68.9	491	3600	49
Mean f	299	24.9	155	83.8	465	115	136	136	69.3	501	3570	48.8
MAD f	32.5	2.15	14	4.45	29.5	9	6.5	4.5	4.15	20	205	3
IQR f	63.8	3.4	25.5	8.5	50	14	12.8	11	8.43	42	388	6
Robust CV% f	15	10	12	7	8	9	7	6	9	6	8	9
Outliers	7	6	2	3	6	4	5	6	3	6	5	4
Stragglers	1	0	0	3	1	0	2	3	2	2	4	0

2014-15: Lead (µgPb/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	12	12	12	12	12	13	12	12	13	13	13	12
Minimum i	142	10.3	28	62	99.9	0.16	19	51	10	29	40	0.01
Maximum i	2360	726	359	4320	393	413	197	273	430	603	502	171
Median i	171	21.4	208	91.2	320	238	121	102	82.1	338	320	19.5
Mean i	364	88.3	212	466	304	239	119	117	111	316	317	37.3
MAD i	16	9.6	22.5	20.2	13.5	48	15.5	6.25	12.9	23	34	10
IQR i	69.8	36.3	45	84.7	21.3	83	27.3	12.4	21.5	51	65	20.9
Robust CV% i	30	126	16	69	5	26	17	9	19	11	15	79
Median f	161	15	208	72.2	320	238	121	101	80.6	344	313	17
Mean f	162	16	216	79.4	320	244	121	102	82.6	338	312	16.2
MAD f	7	2.2	18	5.7	7.5	37	12.5	2	9.7	3	20.5	7.5
IQR f	13.5	4.9	37	18.7	13	69	23.8	2	17.8	11	35.8	11.8
Robust CV% f	6	24	13	19	3	21	15	1	16	2	8	51
Outliers	3	2	2	3	3	1	2	3	3	3	3	2
Stragglers	1	3	0	1	1	1	0	2	0	3	0	0

2014-15: Magnesium (%Mg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	35	35	35	35	35	35	36	36	34	34	34	34
Minimum i	0.245	0.112	0.253	0.142	0.45	0.109	0.14	0.13	0.16	0.304	0.275	0.09
Maximum i	0.431	0.143	0.467	0.177	1.42	0.151	0.28	0.267	1.19	2.22	2.32	0.61
Median i	0.31	0.126	0.331	0.159	1.11	0.125	0.22	0.216	0.193	0.359	0.346	0.106
Mean i	0.311	0.126	0.332	0.159	1.1	0.126	0.221	0.217	0.225	0.412	0.404	0.121
MAD i	0.013	0.005	0.011	0.007	0.04	0.005	0.008	0.007	0.008	0.01	0.014	0.005
IQR i	0.024	0.01	0.023	0.014	0.085	0.008	0.016	0.013	0.016	0.019	0.029	0.01
Robust CV% i	6	6	5	6	6	5	5	4	6	4	6	7
Median f	0.31	0.126	0.331	0.159	1.11	0.125	0.22	0.216	0.193	0.358	0.346	0.105
Mean f	0.312	0.126	0.33	0.159	1.11	0.125	0.219	0.215	0.193	0.356	0.346	0.105
MAD f	0.008	0.005	0.01	0.007	0.03	0.002	0.003	0.005	0.006	0.008	0.014	0.005
IQR f	0.015	0.01	0.019	0.014	0.063	0.004	0.006	0.01	0.012	0.015	0.026	0.01
Robust CV% f	4	6	4	6	4	3	2	3	5	3	6	7
Outliers	3	1	4	0	6	2	8	10	5	5	4	2
Stragglers	3	0	0	0	1	9	5	2	1	1	0	0

2014-15: Manganese (mg Mn/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	34	34	34	34	33	33	33	33	34	34	34	34
Minimum i	33.7	12.9	8.45	24.4	110	21.6	65.7	21	225	73	111	7.68
Maximum i	167	24.9	23.6	34.9	354	213	128	103	391	130	180	23.7
Median i	48.9	20.9	14.9	32	249	144	79.6	76.1	337	114	149	15.8
Mean i	53	20.6	14.7	31.5	249	143	81.1	75.9	333	113	149	15.5
MAD i	2.2	1.1	0.9	0.95	7	6	3.6	3.5	16	6	8	0.75
IQR i	4.78	2.1	1.73	1.8	14	14	6	6.8	28.8	11.3	13.8	1.4
Robust CV% i	7	7	9	4	4	7	6	7	6	7	7	7
Median f	48.7	21	14.9	32	249	144	79.6	76.1	337	114	150	15.9
Mean f	49	21	14.8	32.3	247	145	79.5	76.1	335	114	151	15.8
MAD f	1.7	1	0.9	0.9	5.5	5	2.5	2.2	14	6	6	0.75
IQR f	3.63	1.9	1.55	1.9	11.3	9	4.9	3.8	28.3	10	11	1.33
Robust CV% f	6	7	8	4	3	5	5	4	6	7	5	6
Outliers	5	5	3	5	8	7	4	6	2	1	5	6
Stragglers	1	0	0	0	1	1	2	2	0	0	0	0

2014-15: Molybdenum (µg Mo/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	15	15	15	15	17	17	17	17	16	17	17	17
Minimum i	20	150	150	150	360	92.3	260	163	10.1	65	525	1400
Maximum i	3940	719	838	796	968	276	610	346	212	320	1120	1960
Median i	66	482	681	580	740	146	483	279	80.8	240	765	1650
Mean i	331	446	653	564	716	161	459	277	95.6	231	747	1650
MAD i	13.3	44	37	25	71	17	37	27	19.6	16	90	110
IQR i	31.4	78	67.5	43	101	58	59	40	60.2	23	154	220
Robust CV% i	35	12	7	5	10	29	9	11	55	7	15	10
Median f	64.5	495	681	585	747	144	483	292	79.7	240	758	1650
Mean f	67.2	488	678	588	771	149	488	298	77.5	238	723	1650
MAD f	11.5	25	34	14	20.5	11	22	17.5	1.9	4	88.5	110
IQR f	28.3	42	55	27.5	79.8	30	34	41	3.7	6.5	153	220
Robust CV% f	33	6	6	3	8	15	5	10	3	2	15	10
Outliers	2	4	2	4	2	2	3	1	1	2	1	0
Stragglers	0	0	0	1	3	2	1	2	6	4	0	0

2014-15: Nitrate-nitrogen (mg NO_3-N/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	15	15	15	15	14	14	14	14	16	16	16	16
Minimum i	0.03	0.229	118	153	140	0.68	1	1	0.8	1470	161	0.271
Maximum i	354	238	4860	5320	1410	1250	207	87.1	2240	3310	1000	537
Median i	8	2.46	437	700	1310	8.5	36.9	23.5	6.81	2820	336	8.93
Mean i	46.1	20.5	839	1060	1210	101	50.3	25.9	150	2680	367	50.7
MAD i	6.5	2.2	82	84	50	4.67	8.05	6.85	3.99	210	42.5	6.17
IQR i	19.3	7.85	150	141	90	10.9	14.9	12.2	8.08	383	85	18.2
Robust CV% i	178	237	25	15	5	95	30	38	88	10	19	151
Median f	5.38	1.3	428	696	1320	6.44	35.3	22	6.49	2840	336	4.98
Mean f	6.97	1.68	435	714	1320	7.47	34.9	21.2	7.32	2760	337	5.77
MAD f	3.39	0.936	61	81	40	3.46	4.5	6.4	3.35	210	40.5	3.34
IQR f	7.71	1.77	89	117	67.5	6.42	7.98	10.9	5.98	320	73.3	6.1
Robust CV% f	106	101	15	12	4	74	17	37	68	8	16	91
Outliers	3	3	4	3	2	3	3	1	2	1	2	3
Stragglers	1	2	0	0	0	0	1	0	0	0	0	2

2014-15: Nitrogen (%N)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	32	32	32	32	34	34	34	34	35	35	35	35
Minimum i	0.673	1.17	2.8	2.36	2.79	1.49	2.5	2.56	2.5	1.85	1.54	1.59
Maximum i	1.23	1.54	3.34	2.91	4.11	2.29	3.7	4.29	3.03	3.45	2.88	2.02
Median i	0.998	1.42	3.14	2.66	3.47	1.8	3.04	3.46	2.74	3.21	1.77	1.86
Mean i	0.993	1.41	3.13	2.67	3.45	1.81	3.04	3.46	2.73	3.15	1.8	1.85
MAD i	0.056	0.04	0.06	0.065	0.06	0.05	0.08	0.08	0.07	0.08	0.07	0.06
IQR i	0.106	0.065	0.115	0.118	0.135	0.1	0.163	0.173	0.145	0.18	0.13	0.12
Robust CV% i	8	3	3	3	3	4	4	4	4	4	5	5
Median f	0.998	1.42	3.14	2.65	3.47	1.8	3.06	3.46	2.74	3.23	1.77	1.87
Mean f	0.995	1.42	3.14	2.66	3.45	1.81	3.06	3.47	2.73	3.22	1.76	1.87
MAD f	0.0475	0.04	0.06	0.06	0.06	0.04	0.07	0.08	0.07	0.06	0.07	0.06
IQR f	0.096	0.065	0.115	0.105	0.12	0.1	0.143	0.16	0.13	0.115	0.13	0.11
Robust CV% f	7	3	3	3	3	4	3	3	4	3	5	4
Outliers	2	1	1	2	3	4	4	3	2	3	2	2
Stragglers	0	0	0	2	0	1	0	0	0	4	0	0

2014-15: Phosphorus (%P)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	35	35	35	35	36	36	36	36	34	34	34	34
Minimum i	0.001	0.212	0.154	0.217	0.166	0.049	0.168	0.191	0.04	0.23	0.15	0.174
Maximum i	0.54	2.62	2.28	3.27	0.27	0.21	0.34	0.37	0.292	0.3	0.4	0.312
Median i	0.062	0.288	0.256	0.364	0.21	0.16	0.255	0.288	0.13	0.263	0.34	0.274
Mean i	0.075	0.355	0.313	0.441	0.211	0.158	0.259	0.29	0.133	0.263	0.334	0.274
MAD i	0.003	0.014	0.009	0.016	0.006	0.008	0.009	0.007	0.005	0.009	0.012	0.014
IQR i	0.006	0.03	0.017	0.034	0.012	0.017	0.02	0.014	0.014	0.015	0.028	0.027
Robust CV% i	7	8	5	7	4	8	6	4	8	4	6	7
Median f	0.062	0.288	0.256	0.364	0.21	0.16	0.253	0.285	0.13	0.263	0.34	0.275
Mean f	0.062	0.287	0.257	0.362	0.209	0.161	0.255	0.286	0.132	0.264	0.34	0.277
MAD f	0.002	0.014	0.005	0.016	0.004	0.006	0.008	0.005	0.005	0.006	0.008	0.014
IQR f	0.003	0.027	0.009	0.032	0.005	0.012	0.011	0.008	0.011	0.013	0.013	0.026
Robust CV% f	4	7	3	7	2	5	3	2	6	4	3	7
Outliers	8	3	6	2	8	4	6	9	5	4	6	1
Stragglers	4	0	2	0	4	0	0	1	0	3	2	0

2014-15: Potassium (%K)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	35	35	35	35	34	34	34	34	34	34	34	34
Minimum i	0.312	0.145	1.62	0.953	0.13	0.11	0.12	0.11	0.683	1.66	1.44	0.294
Maximum i	0.851	0.322	3.44	2.42	5.33	1.19	2.63	2.77	4.99	17.9	13.9	2.15
Median i	0.525	0.212	3.04	2.18	4.78	1.01	2.23	2.42	0.802	3.7	2.15	0.348
Mean i	0.534	0.212	2.98	2.11	4.56	0.979	2.15	2.34	0.917	4.04	2.47	0.402
MAD i	0.035	0.016	0.14	0.12	0.26	0.044	0.125	0.12	0.03	0.155	0.095	0.018
IQR i	0.07	0.03	0.27	0.215	0.568	0.085	0.245	0.228	0.045	0.308	0.188	0.036
Robust CV% i	10	10	7	7	9	6	8	7	4	6	6	8
Median f	0.516	0.212	3.08	2.19	4.85	1.02	2.23	2.43	0.801	3.73	2.15	0.347
Mean f	0.522	0.21	3.09	2.19	4.85	1.01	2.25	2.45	0.79	3.72	2.15	0.347
MAD f	0.024	0.013	0.12	0.08	0.2	0.035	0.12	0.11	0.027	0.125	0.07	0.017
IQR f	0.056	0.026	0.215	0.165	0.37	0.074	0.24	0.235	0.042	0.263	0.14	0.031
Robust CV% f	8	9	5	6	6	5	8	7	4	5	5	7
Outliers	3	3	3	2	4	3	3	3	3	4	4	2
Stragglers	1	1	1	2	1	1	0	0	0	0	1	0

2014-15: Selenium (mg Se/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	11	11	11	11	14	14	14	14	14	14	14	14
Minimum i	10.1	25	8.33	30	25.1	20	15	15.7	10	44.8	51.9	10
Maximum i	599	825	587	782	5560	220	339	396	1940	2590	713	1010
Median i	38.2	63.1	45	63.1	126	30.8	25	89.4	39.6	90.2	85.9	818
Mean i	128	169	118	134	626	61.6	74.7	110	262	403	212	741
MAD i	13.3	30.5	22.6	12.7	49	10	7.6	9.75	8.75	13.4	22.8	55.5
IQR i	117	96.2	98.7	24.7	86.3	69.4	56.9	21.6	250	28.1	179	103
Robust CV% i	226	113	163	29	51	167	169	18	468	23	155	9
Median f	33.3	59.3	38.3	61.1	115	24.9	20	87.4	37.6	84	76.4	831
Mean f	33	57.1	37.1	60.4	120	26.1	20.8	86.8	38.2	83.8	77	855
MAD f	6	2.3	6.7	10.7	40	3.6	3.1	2.65	5.4	9.8	6.4	55.5
IQR f	11.4	3.83	14.3	21.2	58.3	6.9	6.1	4.75	8.8	19.6	10	127
Robust CV% f	25	5	28	26	38	21	23	4	17	17	10	11
Outliers	3	3	2	2	2	5	4	4	4	3	4	2
Stragglers	0	2	2	0	0	0	1	2	1	0	1	0

2014-15: Silicon (%Si) NOT ASSESSABLE

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	6	6	6	6	7	7	7	7	7	7	7	7
Minimum i	0.044	0.009	0.052	0.003	0.01	0.006	0.027	0.014	0.014	0.035	0.038	0.005
Maximum i	0.266	0.022	0.198	0.025	0.406	0.446	2.7	1.65	0.067	0.487	3.39	0.047
Median i	0.0738	0.016	0.091	0.01	0.064	0.066	0.33	0.048	0.02	0.052	0.308	0.016
Mean i	0.102	0.015	0.1	0.012	0.142	0.116	0.813	0.294	0.027	0.153	1.3	0.02
MAD i	0.03	0.003	0.028	0.006	0.054	0.033	0.303	0.034	0.006	0.017	0.271	0.007
IQR i	0.063	0.004	0.049	0.013	0.159	0.072	1.11	0.103	0.015	0.153	2.44	0.011
Robust CV% i	63	21	39	91	184	80	250	158	56	218	588	52
Median f	0.045	0.016	0.091	0.010	0.063	0.055	0.123	0.036	0.018	0.048	0.117	0.016
Mean f	0.046	0.015	0.1	0.012	0.058	0.061	0.298	0.046	0.02	0.046	0.145	0.02
MAD f	0.001	0.003	0.028	0.006	0.026	0.023	0.096	0.012	0.003	0.004	0.079	0.007
IQR f	0.002	0.004	0.049	0.013	0.027	0.04	0.25	0.015	0.012	0.01	0.184	0.011
Robust CV% f	4	21	39	91	32	54	151	31	49	15	117	52
Outliers	1	0	0	0	1	1	1	1	1	2	3	0
Stragglers	2	0	0	0	1	0	1	1	0	1	0	0

2014-15: Sodium (%Na)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	33	32	33	33	33	34	34	34	34	34	34	34
Minimum i	0.043	0.0004	0.002	0.142	0.68	0.006	0.01	0.03	0.067	0.628	0.382	0.006
Maximum i	0.62	0.01	0.06	2.06	2.88	0.045	0.052	0.136	0.563	2.04	1.45	0.11
Median i	0.061	0.001	0.009	0.199	2.35	0.023	0.043	0.117	0.096	0.745	0.459	0.01
Mean i	0.078	0.002	0.011	0.255	2.24	0.024	0.042	0.114	0.117	0.79	0.499	0.015
MAD i	0.004	0.0002	0.001	0.011	0.11	0.003	0.003	0.005	0.004	0.021	0.018	0.001
IQR i	0.007	0.001	0.002	0.024	0.23	0.006	0.005	0.009	0.007	0.044	0.038	0.001
Robust CV% i	9	81	19	9	7	19	9	6	6	4	6	8
Median f	0.061	0.001	0.008	0.199	2.37	0.023	0.044	0.118	0.095	0.745	0.453	0.009
Mean f	0.061	0.001	0.009	0.201	2.34	0.023	0.044	0.117	0.096	0.744	0.455	0.009
MAD f	0.003	0	0.001	0.011	0.095	0.002	0.002	0.004	0.002	0.011	0.011	0.001
IQR f	0.006	0	0.002	0.022	0.173	0.005	0.004	0.007	0.003	0.02	0.02	0.001
Robust CV% f	8	0	14	8	5	16	6	4	3	2	3	9
Outliers	4	12	5	2	6	6	3	5	7	7	7	8
Stragglers	0	9	0	0	1	0	2	0	3	4	2	0

2014-15: Sulfur (%S)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	29	30	30	30	32	32	32	32	31	31	31	31
Minimum i	0.077	0.1	0.1	0.15	0.415	0.08	0.153	0.099	0.016	0.458	0.16	0.066
Maximum i	0.129	0.151	0.286	0.807	1.14	0.198	0.26	0.258	0.194	1.13	0.347	0.15
Median i	0.087	0.114	0.25	0.745	0.549	0.144	0.21	0.185	0.175	0.583	0.244	0.132
Mean i	0.092	0.114	0.245	0.715	0.566	0.144	0.21	0.185	0.167	0.601	0.246	0.129
MAD i	0.004	0.007	0.013	0.033	0.026	0.008	0.011	0.009	0.005	0.021	0.011	0.008
IQR i	0.008	0.013	0.024	0.058	0.053	0.016	0.022	0.019	0.012	0.039	0.021	0.016
Robust CV% i	7	8	7	6	7	8	8	8	5	5	6	9
Median f	0.086	0.113	0.25	0.751	0.549	0.144	0.209	0.185	0.175	0.572	0.244	0.133
Mean f	0.087	0.113	0.25	0.745	0.553	0.145	0.209	0.187	0.173	0.574	0.242	0.132
MAD f	0.003	0.007	0.012	0.029	0.017	0.008	0.008	0.007	0.004	0.019	0.009	0.007
IQR f	0.007	0.013	0.024	0.059	0.031	0.015	0.015	0.014	0.011	0.03	0.018	0.015
Robust CV% f	6	9	7	6	4	8	5	6	5	4	6	8
Outliers	5	1	1	3	6	4	4	3	5	5	5	2
Stragglers	0	0	0	0	0	0	1	3	1	2	0	0

2014-15: Zinc (mg Zn/kg)

Statistical parameters	Plant sample identification and values											
	October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
	ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
No of results	33	34	34	34	35	35	35	35	33	33	33	33
Minimum i	6.66	14.7	15.2	21.2	23.3	36.9	24.1	25.9	12.8	26.6	33	9.62
Maximum i	24.6	23.2	23.9	32.1	66.8	760	48.3	79.9	61.2	64.6	79.6	45.1
Median i	9.03	16.7	18.6	25.1	50.9	77.4	28.3	29.4	20.4	39.3	50.5	19.1
Mean i	10.1	17.2	18.7	25.5	49.5	95.1	29.2	30.9	21.3	38.9	50.7	19.6
MAD i	0.83	0.85	0.9	1.1	2.5	4.1	1.5	1.4	1	2.5	3	0.9
IQR i	2.57	1.9	1.73	2.5	4.95	8.3	2.6	3	1.5	4.4	6.1	1.6
Robust CV% i	21	8	7	7	7	8	7	8	5	8	9	6
Median f	8.98	16.6	18.6	25	51.2	77.6	28	29.1	20.6	39.3	51	19.2
Mean f	8.92	16.6	18.6	25.4	51.6	77.5	27.7	29.1	20.5	38.9	50.6	19.2
MAD f	0.55	0.75	0.5	0.9	2.2	3.9	1.2	1.3	0.4	2	1.9	0.7
IQR f	0.97	1.58	0.9	1.6	4.28	7.7	2.5	2.65	1.08	3.5	5.15	1.43
Robust CV% f	8	7	4	5	6	7	7	7	4	7	7	6
Outliers	5	3	5	3	4	5	3	3	6	4	5	9
Stragglers	3	1	2	2	1	0	1	0	3	2	1	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. It is appropriate, however, to make a few observations.

The grand median robust % CVs across the 12 samples by test in 2014-15, after the removal of "outliers" and "stragglers" and inclusive of "not-assessed" Si, ranged from 1.0 (for C) to 44.0 (Si), which is narrower than the range of final robust % CVs recorded in 2013-14. Figure 4.1 presents, in ascending order of %CVs for 2014-15, grand median robust %CVs for program years 2013-14 and 2014-15. In most cases, robust % CVs for particular tests were higher in 2013-14 than in 2014-15, although this statement ignores the likelihood that robust %CV can be influenced by analyte concentrations. For the 2014-15 Plant Program Year, the elements (tests) with robust %CV most influenced by analyte concentrations (highest %CVs at lowest concentrations) were, in decreasing order, Nitrate-N, B, Cl, N, Al, S and Pb, with coefficients of determination (r^2) for separate power functions of 0.90, 0.88, 0.77, 0.59. 0.57, 0.39 and 0.33, respectively.

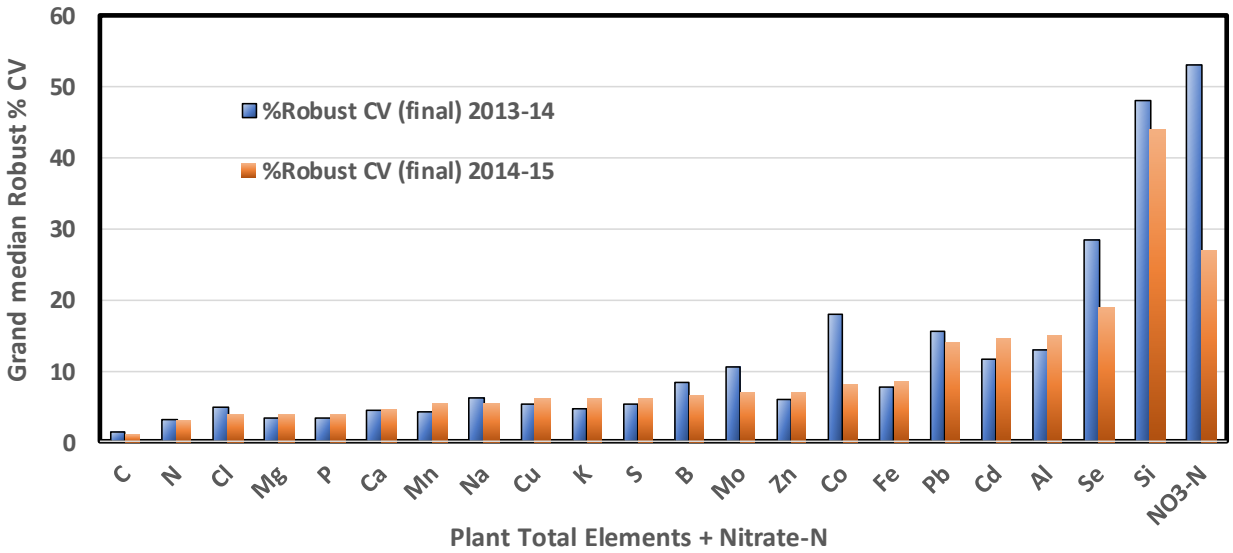

Figure 4.1. Grand median robust %CVs (final) plant-program years 2013-14 and 2014-15, noting plant Si was not assessed in either year due to insufficient participating laboratories.

The sequence for test-samples with lowest (best at 5.0%) to highest grand median %CVs (worst at 9.0%) across all 22 elements (including Nitrate-N and with Si included) were 1502-1 = 1502-3 = 1502-4 = 1505-2 < 1505-1 < 1410-4 = 1505-3 < 1410-1 = 1410-3 = 1502-2 < 1410-2 < 1505-4, all with the prefix ASP. Collectively, the program grand median for the 12 test samples was 6.5%, dropping to 6.0% in the absence of Si data.

Across all 6771 reported plant test results in 2014-15, 14.3% were statistically assessed to be "outliers" (the same percentage as in 2013-14). The corresponding figure for "stragglers" was 3.9% (4.4% in 2013-14). For individual elements, the range of "outliers", expressed as percentages of the number of reported results for the particular test, ranged from 7.2% (for N) to 24.4% (Se), while those for "stragglers" ranged from 1.6% (Al) to 9.7% (Mo).

Unlike the 2013-14 program observations, there was (collectively for all tests combined) a reasonable linear relationship ($y = 0.102x + 12.659$; $r^2 = 0.54$) between total numbers of test results (x) for each test *vs* the corresponding number of "outliers" (y). The linear relationship for "stragglers" was less convincing ($y = 0.0185x + 6.4318$; $r^2 = 0.12$). And for numbers of "outliers" and "stragglers", there were fair, continuous power-function relationships (r^2 =0.36 and 0.25, respectively) with final robust %CVs, indicating that numbers of both "outliers" and "stragglers" tended higher when robust %CVs were lowest. In other words, it was more likely for a laboratory to record an "outlier" and/or a "straggler" when the between-laboratory variance on a test-by-test basis was low.

Raw data and summary tabulations for the 2014-15 program indicate a reasonably wide range of concentrations applied to most total elements and nitrate-N. Exceptions included Ca, N, P and Si. With Si, this assessment may reflect the presence of acid-soluble results as against true total Si.

Appendix 1: List of laboratories (including contact details at the time) who participated in ASPAC's Plant ILPP in 2014-15, arranged by country

Name (position)	*Facility*	*Street and/or Postal Address*	*Country*	*Email*
Mrs Stephanie Cameron (Laboratory Operations Manager)	East West EnviroAg	82 Plain St, Tamworth, NSW 2340	Australia	admin@ewenviroag.com.au
Mr George Croatto (Sample Reception)	Department of Primary Industries	Ernest Jones Dr, Macleod, VIC 3085	Australia	george.croatto@depi.vic.gov.au
Mr Graham Lancaster (Laboratory Manager)	Environmental Analysis Laboratory (EAL) Southern Cross University	University Store, Rifle range Rd, East Lismore, NSW 2480 PO Box 5125, East Lismore, NSW 2480	Australia	glancast@scu.edu.au
Ms Jenny McGuire (Manager – Inorganics)	ChemCentre Bentley	Cnr Manning Rd & South Entrance of Curtin University BENTLEY, WA 6102 PO Box 1250 Bentley Delivery Centre, WA 6983	Australia	JMcGuire@chemcentre.wa.gov.au
Kellie Taylor (Lab Manager)	EP Analysis	26 Railway Tce, Cummins, SA 5631 PO Box 400, Cummins SA 5631	Australia	ep.analysis@yahoo.com.au
Mr Steve Byrne (Laboratory Manager)	Vintessential Laboratories	32 Brasser Avenue, Dromana, VIC 3936 PO Box 2244, Dromana, VIC 3936	Australia	steve@vintessential.com.au
Mr Robert Lascelles (Chief Chemist)	SGS Food and Agriculture Laboratory	59 Bancroft Rd, Pinkenba, QLD 4008 PO Box 549, Pinkenba, QLD 4350	Australia	Robert.Lascelles@sgs.com
Mr Paul Kennelly (Laboratory Manager)	Nutrient Advantage Laboratory Services	8 South Rd, Werribee, VIC 3030	Australia	Paul.Kennelly@incitecpivot.com.au
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Appendix 2: Homogeneity data and statistical assessments* for Total Plant N% (Dumas N) on the 12 test plant samples in 2014-15.

Sample name		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
Sub-sample													
1	Rep 1	0.963	1.31	3.12	2.64	3.4	1.8	2.96	3.45	2.67	3.1	1.72	1.76
	Rep 2	0.963	1.31	3.13	2.63	3.39	1.8	3.01	3.43	2.69	3.1	1.72	1.77
2	Rep 1	0.98	1.31	3.12	2.67	3.36	1.81	2.97	3.4	2.68	3.07	1.71	1.76
	Rep 2	0.972	1.3	3.13	2.67	3.38	1.8	2.96	3.42	2.68	3.09	1.7	1.78
3	Rep 1	0.943	1.32	3.13	2.66	3.42	1.82	2.98	3.43	2.67	3.08	1.71	1.77
	Rep 2	0.935	1.31	3.13	2.67	3.39	1.79	2.97	3.45	2.68	3.06	1.71	1.78
4	Rep 1	0.987	1.3	3.12	2.65	3.43	1.81	2.97	3.45	2.65	3.09	1.71	1.8
	Rep 2	0.973	1.3	3.12	2.64	3.38	1.8	2.97	3.44	2.67	3.08	1.71	1.76
5	Rep 1	0.938	1.3	3.12	2.65	3.39	1.81	2.96	3.43	2.69	3.12	1.73	1.79
	Rep 2	0.929	1.32	3.14	2.65	3.4	1.81	2.97	3.46	2.69	3.11	1.71	1.78
6	Rep 1	0.975	1.31	3.12	2.66	3.39	1.82	2.96	3.42	2.66	3.08	1.7	1.78
	Rep 2	0.962	1.32	3.13	2.67	3.4	1.81	2.98	3.41	2.69	3.1	1.7	1.79
7	Rep 1	0.944	1.32	3.12	2.65	3.4	1.8	2.97	3.44	2.67	3.13	1.72	1.8
	Rep 2	0.939	1.31	3.14	2.68	3.38	1.82	2.96	3.47	2.68	3.12	1.72	1.81
8	Rep 1	0.961	1.3	3.13	2.65	3.4	1.84	2.97	3.45	2.67	3.12	1.73	1.79
	Rep 2	0.958	1.31	3.13	2.67	3.39	1.82	2.99	3.45	2.67	3.09	1.71	1.78
9	Rep 1	0.95	1.3	3.13	2.66	3.4	1.81	2.98	3.46	2.67	3.1	1.71	1.78
	Rep 2	0.956	1.3	3.12	2.65	3.39	1.82	2.95	3.44	2.69	3.08	1.71	1.78
10	Rep 1	0.935	1.32	3.11	2.65	3.4	1.82	2.95	3.45	2.67	3.11	1.71	1.77
	Rep 2	0.938	1.31	3.13	2.65	3.4	1.81	2.98	3.43	2.68	3.08	1.71	1.78
Mean		0.955	1.31	3.13	2.66	3.39	1.81	2.97	3.44	2.68	3.1	1.71	1.78
Analytical SD		0.00003	0.00003	0.00005	0.00006	0.0002	0.00009	0.0002	0.0002	0.0001	0.0002	0.00003	0.0001
Sampling SD		0.0003	0.00001	0	0.00008	0	0.00003	0	0.0001	0.00001	0.0002	0.00005	0.00003
SD proficiency data		0.066	0.058	0.095	0.083	0.083	0.06	0.08	0.107	0.101	0.117	0.086	0.091
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 2014-15.

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 HCIO4	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

Preparation / Extraction / Digestion Technique	ASPAC MIC Code
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

Instrumental and/or analytical finish	ASPAC IA-MIC Code
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 2014-15 Aluminium (mg Al/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
	DE-23	299	16.5	237	22.5	1040	127	106	112	56.1	907	3550	7.65
8888	DE-23	281	20	227	24	959	132	100	124	61.3	945	4000 ††	12.6
10156	GI-23	162	31.1 ††	115 ††	59.5 †	633 ††	115	85.3 †	75.7	80.8 ††	1150 ††	4040 ††	8.11
10173	DN-23	236	18.2	162	21.1	943	108	97.6	86.4	50.1	808	3010	1.6
11079	DE-23	256	23.2	186	26.8	1080	116	101	114				
21043	GJ-23	210	15	179	19.9	881	124	98.4	100	45.7	831	3310	5.83
21100	DE-24	219	14.9	185	23.4	1120	107	90.8	101	44.5	828	2980	17 ††
21138	DE-23	289	18.8	220	36.6 †	1030	142	97.2	124	61.2	967	3120	
21195	GI-23	295	11.7	163	24.6	1070	102	93	89	52.4	882	199 ††	1.4
21196	DE-23	109 †	12.5	118 †	18.1	1030	130	114 †	84.8	56.4	755	3170	10.4
21229	GI-23	201	13.6	158	16.4	1080	106	99.4	98.5	49.6	839	2990	3.35
21230	GG-23	226	12.3	49.7 ††	18.6	781 ††	91.3	75.9 ††	83.6	45.6	714 ††	2880	3.71
21232	DE-23	334	29.4 ††	242	27.6	1040	120	89.9	86.3	68.6	952	3430	4.7
50004	DE-23	231	20.4	199	22.1	1150	138	107	121	58.3	874	2990	8.76
50005	GJ-23	228	16.4	167	20.8	987	118	95.4	111	63.4	877	2650	12.1
50009	GJ-23	247	17.4	191	21.9	1010	132	108	116	45.1	856	3550	1.88
50011	DE-23	237	16	185	20	970	124	101	103	58	880	3250	4
50012	DN-23	265	16.1	192	18.1	1000	114	88.2	94.8	51.7	896	3300	6.27
50014	DE-23	261	17.6	202	25.1	1130	135	112 †	108	61.7	899	3080	1.51
50017	DE-23	296	25.8 †	198	24.7	1040	121	96	104	102 ††	844	2950	9.9
50020	GI-23					2020 ††	172 †	164 ††	145 ††	39.7	820	2880	2.31
50024	GJ-23	208	12.5	151	14.4	1030	111	96.3	102	40.2	812	2750	1.2
50027	DN-23	205	13	166	18.6	984	116	97.8	94.5	48.4	825	3150	10.2
50029	AD-23	150	5.19 ††	140	12.9	682 ††	72.2 †	65.8 ††	70.7	36.4	657 ††	938 ††	0.621
50037	DE-23	231	13.3	180	16.8	990	108	101	102	50.5	876	3590	2.5
50038	GJ-23					1270 ††	101	122 ††	175 ††	57	766	2800	142 ††
52283	GJ-23	304	17.5	205	28.6	922	110	96.7	95.6	56.3	947	3540	2.2

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Boron (mg B/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
22	DE-23	23.9	0.713	47.5	15.6	21.3	18.3	15.1	24.9	19.6	30.1	6.98	0.979
8888	DE-23	22.5	0.6	50.5	15.4	22.7	19.5	16.3	25.9	22.2	32.5	8.04	1.34
10156	GI-23	22.3	4.5 ††	41.5	18.2 †	22.2	22.7 †	18.4 ††	25.5	23.3	32.8	7.69	1.64
10173	DN-23	21.1	1.03	44.4	15.2	20.3	17.7	15.9	23.1	19.4	27.7 ††	6.27	0.623
11035	GG-23			44	15					19	28 ††		
20204	GJ-23	24.2	1.47	37.9 ††	12.9	21.6	18.5	15.1	25	20.4	31.8	9.99 †	2.24 ††
21043	GJ-23	21.8	2.01	48.2	16.2	23.4	19.5	13.9	25	23.4	32.3	8.52	3.07 ††
21100	DE-24	21.4	0.181	47.6	15.9	21.6	17.9	15.5	26	22.5	32.9	5.76	0.133
21138	DE-23	22.1	0.507	46.6	14.7	22.7	18.4	14.6	24.8	23.6	34.6	6.98	
21195	GI-23	42.6 †	1.73	77.1 ††	21.8 †	13 ††	17	12 ††	27	23.4	42.3 ††	8.8	4.7 ††
21196	DE-23	66.8 †	1.38	46.9	15	23.1	21.2	18.2 †	28.5 †	20.4	30.8	9.67 †	0.897
21229	GI-23	25.9	1.72	47	15	21	19	16.4	24.3	22.6	32.2	14.1 ††	0.842
21230	GG-23	25.2	3.33 ††	46.9	17.5	19.4	20.3	15.6	24.1				
21232	DE-23	21.8	0.9	43.3	15	21.9	17.9	15.3	24.8	23.3	34.4	11.7 ††	1.2
50004	DE-23	16.3 †	0.942	38.6 ††	13.2	23	18	15.2	24.3	21.9	31.2	7.16	0.979
50005	GJ-23	30.5 †	5.06 ††	46.7	20.5 †	20.8	17.7	14.8	22.6	23.6	31.9	11.8 ††	2.97 ††
50008	AD-23	22.9	2.87 †	44.5	15.5	17.5 †	19.4	16.2	25.6	20.3	28.8	5.32	0.67
50009	GI-23	23.7	0.762	50.8	16.4	22.6	20	16.4	26.9	23.7	31.9	7.4	0.681
50011	DE-23	23	0.85	47	15	20.5	19	16	25	22	30	6.7	1
50012	DN-23	24.7	1.95	44.7	14.6	18.2	15.6	12.2 ††	20.1 ††	20.2	30.3	7.09	0.6
50014	DE-23	24.3	0.886	50.6	16.3	24.2	20.8	17.6 †	27.6	22.3	32.9	6.63	0.323
50017	DE-23	23.6	1.2	48.6	15.8	22.7	17.3	14.3	23.9	22.9	29.5	7	1
50020	GI-23	22.8	2.13	48.9	16.9	24.3	19.5	15.7	26.4	23.5	33.4	6.25	1.1
50024	DE-23	22.7	0.199	45.7	14.5	20.8	16.2	14.2	22.8	20.9	31.5	14.5 ††	0.2
50025	GJ-23	22	2.4	45	14.4	17.5 †	14.4 †	11.9 ††	20.9 ††	60.4 ††	114 ††	0.001 ††	1
50027	DN-23	21.9	0.803	44.9	13.9	20.7	18	15.4	24.6	21.2	31.4	18.5 ††	0.92
50029	AD-23	22	0.815	45.4	16	21.8	20	16.2	28.5 †	23.5	32.2	6.32	0.363
50032	DE-30					25.3	21	17.3	21.5 †	18.5	33.5	21.5 ††	1.4
50037	DE-23	23.6	1.7	46.4	17.1	20.3	17.9	16.1	25.3	21.9	30.8	7.22	0.26
50038	GJ-23					35.3 ††	28.1 †	20.7 ††	30.3 ††				
52283	GJ-23	47.7 †	18.7 ††	55.1 ††	23.5 †	25.3	15.5	10.3 ††	32.9 ††	23.1	35.1	14.3 ††	5.86 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Cadmium (µg Cd/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
22	DE-24										835		16.5
10173	DN-23	39.6	0.50	24.5	1710	536	3.29 †	106	257	16.3	927	16.5	14.8
11079	DE-23	32.5	15.1 ††	42.4	1461					8.26 ††	857	23.5	21.2
21100	DE-24	44.8	2.05	16.3	1566	604	14.9 †	112	254	18.3	896	18.9	15.5
21196	DE-23	27.5	4.91	12.7	1120 †	598	100 †	114	252	10	11300 ††	19.6	125 ††
21230	GG-24	43.7	2.40	29.3	1590	607	7.59	118	264	30.9 ††	874	32.9 ††	21
50004	DE-24	38.7	1.21	37.6	1614	647	4.95	246 ††	278	14.2	818	16.1	15.2
50005	GJ-23	36.8	4.01	46.8	1420	543	6.01	108	241	16.6	740	20.1	16.7
50009	GJ-24	38.5	1.77	71.6 ††	1540	627	6.36	114	276	14.9	939	17.3	15.2
50011	ZZ-24	39	3.00	20	1462	568	6.5	140 ††	250	17	922	16	16
50012	DN-24	27	0.794	42.7	1696								
50014	DE-23	47.7	10.1 ††	37	1640	635	6.2	114	273	18.3	996	22	21.7
50024	GJ-23	1.00 †	1.00	10	1176 †	460 ††	10 †	65 ††	190 ††	31.4 ††	826	27.5	83.1 ††
50037	DE-24	35.2	3.68	33.1	1472	582	6.4	141 ††	236	16.6	723	18.8	17

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Calcium (%Ca)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	1.11	0.01	1.62	0.557	2.18	0.997	0.766	0.773	0.877	2.46	0.512	0.031
8888	DE-23	1.02	0.011	1.57	0.532	2.22	0.978	0.746	0.762	0.936	2.41	0.491	0.04 ††
10156	GI-23	1.05	0.017 †	1.53	0.53	2	1.07	0.813	0.753	0.846	2.16 †	0.515	0.039 ††
10166	AD-01					1.82	0.74 †	0.281 ††	0.43 ††	0.688 ††	2.14 †	0.324 ††	0.075 ††
10173	DN-23	0.931	0.014 †	1.44	0.484	2.3	0.815 †	0.63 ††	0.63 ††	0.95	2.25	0.56 †	0.034 ††
10181	GF-38	0.92	0.016 †	1.54	0.54	2	0.933	0.7	0.699 ††				
11035	GG-23							0.92 ††	0.9 ††	0.81	2.2	0.05 ††	
11079	DE-23	1.21 †	0.013	1.72	0.61	2.32	1.16 †	0.922 ††	0.923 ††				
20204	GJ-23	1.12	0.025 ††	1.51	0.484	2.09	0.86	0.735	0.758	0.498 ††	2.31	0.547	0.048 ††
21043	GJ-23	1.01	0.009	1.75 ††	0.557	2.03	1.04	0.743	0.759	0.898	2.49	0.517	0.031
21100	DE-24	1.04	0.01	1.59	0.568	2.11	0.931	0.724	0.761	0.863	2.32	0.489	0.028
21138	DE-23	1.13	0.01	1.7	0.591	2.22	0.971	0.719	0.758	1 ††	2.73 ††	0.519	0.032
21190	AD-09	1.1	0.021 ††	1.65	0.608	2.26	0.995	0.778	0.753	0.895	2.19 †	0.498	0.009 ††
21193	GJ-11	0.972	0.014 †	1.41	0.5	2.1	0.08 †	0.7	0.68 ††	0.84	1.71 ††	0.45 ††	0.03
21195	GI-23	1.06	0.008	1.64	0.541	1.88	0.9	0.74	0.74	0.95	2.36	0.565 ††	0.032
21196	DE-23	0.737 †	0.01	1.54	0.514	2.28	1.08	0.852 ††	0.893 ††	0.856	2.44	0.488	0.029
21229	GI-23	1.01	0.01	1.53	0.524	2.08	0.951	0.746	0.743	0.915	2.39	0.515	0.031
21230	GG-23	0.944	0.01	1.29 ††	0.469	1.63 ††	0.884	0.68	0.687 ††	0.8 †	2.12 †	0.456 ††	0.031
21232	DE-23	0.97	0.02 ††	1.49	0.54	2.08	0.99	0.75	0.76	0.936	2.54 †	0.55	0.03
50004	DE-23	1.23 †	0.015 †	1.69	0.512	2.37	1.02	0.806	0.799 †	0.902	2.38	0.502	0.031
50005	GJ-23	0.944	0.009	1.5	0.471	2.19	0.966	0.74	0.748	0.899	2.33	0.513	0.028
50008	GJ-23	1.06	0.01	1.61	0.552	2.15	0.962	0.758	0.761	0.885	2.29	0.5	0.027 ††
50009	GI-23	1.05	0.01	1.57	0.571	2.11	0.971	0.765	0.772	0.912	2.39	0.527	0.031
50011	DE-23	1.05	0.01	1.61	0.51	2.1	0.98	0.76	0.76	0.93	2.37	0.51	0.032
50012	DN-23	1.01	0.009	1.56	0.522	2.12	0.917	0.708	0.712 ††	0.899	2.39	0.51	0.03
50014	DE-23	1.14	0.012	1.75 ††	0.6	2.46 ††	1.08	0.851 ††	0.872 ††	0.89	2.48	0.527	0.032
50017	DE-23	1.07	0.021 ††	1.61	0.555	2.12	0.947	0.774	0.749	0.889	2.36	0.51	0.032
50020	GI-23	0.965	0.011	1.46	0.496	2.27	0.99	0.75	0.773	0.864	2.36	0.479	0.027 ††
50021	GJ-23	1.11	0.013	1.52	0.562								
50024	GJ-23	1.03	0.01	1.52	0.55	2.11	0.934	0.726	0.755	0.871	2.34	0.5	0.029
50025	GJ-23	1.01	0.009	1.49	0.52	2.24	0.926	0.734	0.742	0.876	2.53 †	0.501	0.017 ††
50027	DN-23	0.99	0.011	1.57	0.544	2.04	0.978	0.784	0.766	0.876	2.37	0.523	0.033
50029	AD-23	1.04	0.01	1.56	0.585	1.9	1.12 †	0.882 ††	0.908 ††	0.968	2.17 †	0.493	0.03
50032	DE-11	1.06	0.027 ††	1.53	0.553	2.23	0.933	0.747	0.76	0.875	2.32	0.54	0.03
50037	DE-23	1.06	0.015 †	1.6	0.561	2.16	0.996	0.772	0.77	0.92	2.36	0.516	0.032
50038	GJ-23					1.09 ††	0.62 †	0.62 ††	0.58 ††	3.89 ††	8.39 ††	2.58 ††	0.11 ††
52283	GJ-23	1.19	0.011	1.72	0.596	2.57 ††	1.08	0.862 ††	0.873 ††	1.06 ††	2.52	0.585 ††	0.035 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Carbon (%C)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	CA-37	45.5	43.7	44.8	41.4	36.7	49.5	42.8	43.7	51	40	40.7	44.2
8888	CA-37									49.1 †	38.4 ††	38.6 ††	41.4
10156	CA-37	47.7 †	46.6	46.1 ††	43.9 †	37.5	50.3	43.7	44.6	53.6 ††	42.8 ††	43.3 ††	47.8 ††
10173	CA-37	43.5	41	43.2 ††	39.1 †					49.4 †	37.9 ††	38.8 ††	41.7
10181	CA-37	45.3	43.3	44.5	41	37.4	50.6	43.5	44.6	51.2	40.3	40.4	44.7
11035	CA-37	46	41	45	42								
11079	CA-37	46	43.4	44.7	41	41.2 ††	45.7 †	44.5	46.4 ††	50.7	40.1	40.6	43.2
20204	CA-37	44.6	41.9	44.4	40.1	36.8	50.2	43.7	44.1	51.5	40.2	40.5	43.6
21100	CA-37	44.4	42.7	43.9	40.7	37	48.8 †	42.9	43.7	50.2	39.7	39.2 †	42.5
21138	CA-37	45.2	42.5	44.9	41.4	37.2	49.8	43.5	44.6	48.2 ††	39.2 †	39.8	43
21230	CA-37	46	44.2	45.1	41.7	36	48.5 †	42.2	42.9	50.9	40.1	40.4	44.4
50004	CA-37	45.7	44.5	45.2	41.5	36.3	49.6	42.7	43.5	50.1	49.7 ††	38 ††	42.9
50005	CA-37	45	42.4	44.8	40.5	37.2	49.6	45 ††	45.6	48.8 †	39.1 †	39.9	42.5
50008	CA-37	45.2	43.3	44.3	40.9	36.6	49.6	43.1	44.3	50.1	39.8	40.1	43.7
50011	CA-37	45.7	43.5	45.7	41.1	37	49.7	43	44	51.8	40.2	40.6	44
50012	CA-37	44.4	41.9	44.4	40.2					53 †	41.2 †	41.5	44.7
50014	CA-37	45.9	44.3	45.2	41.8	36.8	49.5	43	43.9	50.8	39.8	40.1	43.8
50017	CA-37	44.9	43.1	44.5	41.2	36.3	49.9	42.8	43.8	51	39.9	40.5	43.9
50020	CA-37					34.8 ††	47.8 †	40.2 ††	40.4 ††	35.9 ††	32.1 ††	33.7 ††	29.1 ††
50021	CA-37	43.6	41.5	43.9	39.7	37.5	49.7	43.5	43.8	51	40	40	43
50024	CA-37	45.9	43.8	45.1	41.6	37.8	50.1	43.8	44.7	51.1	40.4	41.1	44.3
50029	CA-37	42.4 †	40	42.5 ††	38.2 †	35.8	47.9 †	41.6 ††	42.1 ††	48.4 ††	37.9 ††	38 ††	41 ††
50032	CA-37	43.6	41.5	43.8	39.5	38.3	50.5	44.2	44.8	50.7	40.4	40.4	43.4
50037	CA-37	45	43.9	44.7	41.3	37.1	50	43	44.6	51.2	39.9	40.2	44.2
52283	CA-37	42.9	41.6	42.5 ††	39.3	38.6 †	51.1 †	44.6 ††	45.3	55.8 ††	43.1 ††	43.1 ††	48.1 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Chloride (mg Cl/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	BA-32	1510	6.97 ††	712	4240	35800	621	3170	5280	5110	26400	13800	1250
8888	BB-18	2250 †	550 ††	3150 ††	4900 †	36800	4200 †	5300 ††	9000 ††	6010 ††	29900 ††	13700	1520 †
10173	CA-27	1500	300	700	3900					4900	24800	12700 ††	1200
20204	BB-27	1920 †	460 †	960	4220	35000	750	3260	5210	4590 †	24400	13500	1020
21043	BB-31	1520	337	805	4040	34500 †	674	3100	5100	4850	25000	13300	1190
21100	BB-31	2530 †	309	3050 ††	7200 †	30300 ††	1090 †	3080	5410	5630 †	28000	13300	1080
21138	BA-32	1830 †	480 †	907	4530	36200	800	3300	5500	5170	26000	13700	1350
21193	BB-38	1470	334	684	3790	35600	585	3650	5840				
21195	GE-31	1740	290	2830 ††	2900 †	38100 †	6490 †	6580 ††	9140 ††				
21196	BB-31	1700	270	2180 ††	4500	40100 ††	1490 †	3890 †	6180 ††	5630 †	26200	14500 ††	1140
21229	BB-31	1550	407	744	4150	36100	599	3190	5400	5140	24800	13800	1120
21232	BB-31	0.15 †	0.05 ††	0.05 ††	0.35 †	29500 ††	500	2000 ††	4000 ††	0.4 ††	1.95 ††	1.15 ††	0.1 ††
50005	BB-32	1920 †	169 †	1250 †	4390	36100	181	3530	5400	5130	25600	13800	1440
50009	BA-23	1490	249	629	4170	35800	592	3190	5380	5330	25500	13600	1250
50011	BB-31	1600	300	755	4200	36000	800	3200	5200	5000	25500	13500	1400
50012	BB-31	1490	226	745	4340	34400 †	733	3180	5650	5230	25400	12800 †	1070
50014	BB-31	1400	400	900	3900	32800 ††	1000	3000	5100	5130	26800	13900	1220
50016	BA-32									5050	26200	13600	1140
50017	BB-31	1400	288	777	4230	36700	560	2970	5610	4740	26900	14000	878
50020	BA-31	2180 †	735 ††	2640 ††	4700	36200	1690 †	3460	5520	7020 ††	26900	13600	1780 ††
50027	BB-32	1610	380	520	3570 †	53800 ††	240	1830 ††	5250	4360 ††	31400 ††	15000 ††	330 ††
50029	BB-31	2060 †	307	2130 ††	4360	32600 ††	1390 †	3850 †	6070 †	5320	24500	11400 ††	1000
50032	BB-27	2170 †	245	2520 ††	4520	36100	1700 †	3600	6300 ††	6860 ††	29000 †	15600 ††	1710 ††
50037	BB-32	1500	302	517	4210	36200	591	3230	5330	5200	26000	13600	1170
52283	BA-31	440 †	34.7 ††	106 †	3100 †								

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Cobalt (µg Co/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
22	DE-24	119	37.4	89.1	56.3	177	76.6	40.6 †	152	14.6	140	3180	6.9
8888	DE-24					160	70	40 †	140	0.01	0.16 ††	3.1 ††	0.01 †
10156	GI-23	2.1 †	161 ††	172 ††	137 †	184	112 †	53.2	148		142	2140 †	12.6
10173	DN-23	145	73.6 ††	115	59.8	181	87.5	56.7	157	26.6	157	2370	133 ††
21100	DE-24	119	34.4	92.8	58.7	185	93.9	52.9	169	33.5	164	2580	12.3
21138	DE-24					162	75.7	32.6 ††	151		144	2810	
21196	DE-23	357 †	10.3 ††	54.5	87.1 †	205	139 †	10 ††	190	44.5	146	2990	10.1
21230	GG-24	128	36.7	80.6	58.2	180	77.8	50.6	162	25.2	154	2920	14.3
50004	DE-24	154	28.5	79.4	46.3	196	82	55.1	171	19.6	167	3360	6.33
50005	GJ-23	138	65.6 ††	38.2	23.4 †	167	8.17 †	13.6 ††	91.5 ††	44.1	161	2740	45.5 ††
50009	GJ-24	121	31.5	88.9	53.8	190	79	47	168	22.3	168	3130	11.3
50011	DE-24	140	36	105	52	180	80	53	160	36	160	3000	9
50014	DE-24	129	35.3	84	50.7	176	84	49	165	18	150	2850	6.93
50020	GI-23					162	84.7	75.7 ††	110 ††	32.6	136	1800 ††	32 ††
50024	GJ-23	81 †	53 ††	60	65	103 ††	53 †	51	132	5	98 ††	2730	9
50027	DN-23	91	41	54	43	146	59 †	32 ††	182	33	152	3010	27 ††
50029	AD-23	105	35.2	62.8	55.2	118 ††	77	52.2	176	17.3	100 ††	1510 ††	9.67
50037	DE-24	187 †	32	210 ††	84 †	176	88.5	49.4	164	35	161	2990	8.71
50029	AD-23	168	8.33 †	35	242 †	112	51.7	49.5	339	28.8	115	610	20.5
50037	DE-24	168	3.52	55.6 ††	298	292 ††	65.2	74 ††	303	24.5	262	505	4.31

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Copper (mg Cu/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	2.49	2.56	53.5	3.14	28.5	7.09	11.4	6.53	7.89	16.7	9.59	6.57
8888	DE-23	2.23	2.25	48.6	2.82	25.7	6.54	10.2	5.65	9.06 †	15.3	8.57	5.76
10156	GI-23	2.61	3.12	47.3	50.6 †					8.29	16.4	9.25	5.97
10166	AD-01					6.98 ††	6.18	2.06 ††	6.03	24.4 ††	31 ††	33 ††	24.5 ††
10173	DN-23	2.5	3.01	43.8	3.33	22.2 ††	6.58	9.43 †	5.09 †	6.29	12.3 ††	7.75	4.77 †
11035	GG-23	2.6	2.3	50	2.9	27	6.8	11	5.9	6.8	15	8.6	5.5
11079	DE-23	2.79	2.5	52.2	3.08								
20204	GJ-23	4.12 †	3.97 ††	34.1 ††	5.16 †	26.2	8.12 †	11.8	7.43 ††	4.21 ††	15.2	10.8	6.98 ††
21043	GJ-23	2.45	2.29	48.6	2.65	25	7.02	10.5	5.94	6.88	14.1	8.67	5.65
21100	DE-24	2.67	2.47	52.3	3.34	29.3	6.96	11	6.18	7.38	15.7	9.83	5.99
21138	DE-23	2.96	2.66	55.3	3.69	28.3	6.86	11	6.39	6.8	17.4	8.2	5.7
21190	AD-13	3.08	1.92	52.3	4 †	26.7	5.91 †	6.81 ††	5.16	7.48	16.6	5.67 ††	5.15
21193	GJ-11	3.01	2.72	57.3	4.09 †	27.3	6.02 †	10.2	5.47	6.89	13.9	8.49	5.05
21195	GI-23	2.87	2.16	47.8	2.61	28	6.6	11	5.9	6.62	15.2	8.91	5
21196	DE-23	77.4 †	1.42 ††	54	2.22 †	28.7	7.66 †	13.1 ††	7.53 ††	6.88	14.8	8.75	5.24
21229	GI-23	2.76	2.38	52.1	3.01	27.2	6.64	11.1	6.06	7.63	15.5	9.29	5.95
21230	GG-23	2.93	2.57	48.1	3.4	24.4	6.26	10.2	5.77	7.03	14.3	8.27	5.71
21232	DE-23	1.6 †	2.4	51.9	2.3 †	28	6.62	11	6.04	7.7	16.7	9.55	6.03
50004	DE-23	3.73 †	2.75	53.1	3.04	29.3	6.79	11.2	6.19	7.05	15	9.15	5.66
50005	GJ-23	2.59	2.75	48.9	3.13	26.4	6.55	10	5.74	7.54	15.5	9.1	5.94
50008	GJ-23	2.56	2.5	48.7	3.05	26.2	6.86	10.6	6.15	6.72	14	7.9	5.22
50009	GJ-23	2.87	2.58	52.3	3.33	27.6	6.92	11.3	6.37	7.54	15.6	9.57	6.08
50011	DE-23	2.73	2.54	52.5	3.24	27	7.4 †	11.5	6.2	8	16	9.9	6.3
50012	DN-23	2.53	2.36	49	2.88	23.6 ††	6.51	10.2	5.63	7.54	15.7	9.53	5.92
50014	DE-24	2.71	2.78	57.1	3.3	27.7	7.68 †	12.1	6.45	7.65	16	9.56	6.12
50017	DE-23	2.3	2.1	51.2	2.8	26.2	5.6 †	10.3	5.1	7.3	16.2	10.4	5.7
50020	GI-23	4.26 †	2.76	60.4 ††	4.04 †	28.6	6.64	11	6.07	7.67	16.9	9.25	5.5
50021	GJ-23	2.66	2.32	50.6	3.02								
50024	GJ-23	2.3	2.21	47.2	3.22	26	5.79 †	8.98 ††	4.95 ††	7.22	14.9	7.82	5.74
50025	GJ-23	4.2 †	2.6	51	3.6	29.1	6.32	10.7	5.64	6.93	15.4	8.34	5.24
50027	DN-23	2.31	2.27	50.5	3.05	26.7	6.81	11.3	6.32	7.61	17	9.7	5.84
50029	AD-23	2.97	0.072 ††	58	3.76 †	24.7	6.95	8.7 ††	5.81	8.19	14.6	2.52 ††	0.368 ††
50032	DE-11	2.03	1.3 ††	50.7	2.3 †	27.3	6.94	10.9	6.33	7.64	16.1	9.94	5.43
50037	DE-23	2.96	2.63	53.9	3.21	25.9	6.7	11.2	6.18	7.54	15.6	9.23	5.96
50038	GJ-23					38.9 ††	5.82 †	13.5 ††	3.71 ††	11.1 ††	20 ††	11.3 †	3.61 ††
52283	GJ-23	3.07	0.992 ††	44.4	3.17	27.7	6.72	11.4	6.63	9.24 ††	17.8 †	11.3 †	6.92 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Iron (mg Fe/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	345	29.5	175	80	456	122	131	137	70.6	511	4030	52.6
8888	DE-23	219	26.9	139	68.5	400	113	122	130	69.1	514	3980	46.3
10156	GI-23	277	40.7 ††	145	93.7	520	227 †	208 ††	177 ††	52.1 †	384 ††	2000 ††	43.6
10166	GE-01									155 ††	280 ††	847 ††	163 ††
10173	DN-23	992 †	495 ††	137	129 †	439	94.6	104 ††	100 ††	61.5	476	3110	42.3
11035	GG-23	1100 †	22	140	72	380	100	120	110 †	53 †	400 †	2800 †	45
11079	DE-23	332	26.9	165	79.8								
20204	GJ-23	332	64.3 ††	142	91.6	455	132	129	141	2330 ††	475	3010	96.4 ††
21043	GJ-23	697 †	23.6	168	87.7	459	152 †	153	147	82.2	543	3560	43.2
21100	DE-24	310	28.8	176	91.4	490	115	134	148	57.8	501	3860	51.6
21138	DE-23	364	28.1	184	96.8	483	120	138	143	72.5	556	3760	45.6
21190	AD-13	251	17.8	137	65.1 †	335 ††	94.9	115	113 †	80.2	1180 ††	2530 †	34 ††
21193	GJ-11	233	22.2	137	85.9	428	88.4	126	122	50.2 ††	365 ††	2390 †	44.1
21195	GI-23	676 †	22.3	141	74.8	625 ††	115	130	140	60.4	520	223 ††	15.5 ††
21196	DE-23	385	28.2	160	84.9	638 ††	168 †	218 ††	185 ††	65.3	435	3380	56.6
21229	GI-23	337	22.7	154	83.5	431	115	137	134	70.4	486	3360	49.3
21230	GG-23	179 †	6.42 ††	25.9 ††	69.1	350 ††	93.6	92.8 ††	102 ††	66.5	457	3380	49.5
21232	DE-23	273	33.8 ††	181	81.5	535	125	142	135	81.3	576 †	3750	52.3
50004	DE-23	1870 †	19.7	129	55.4 †	556	128	149	148	70.2	526	3680	46.6
50005	GJ-23	314	25.2	140	98.1	449	114	156	126	66.2	478	2960	54.7
50008	GJ-23	267	23.8	148	81.3	428	110	130	128	64.7	476	3400	48.5
50009	GJ-23	358	26.7	165	87.9	490	123	143	138	68.7	528	3790	50.6
50011	DE-23	300	24	167	80	450	124	145	138	73	491	3600	52
50012	DN-23	311	23.3	163	67 †	496	117	129	125	68.7	529	3660	48.3
50014	DE-23	250	25	171	77.7	491	132	149	139	69.1	518	3590	46.5
50017	DE-23	1020 †	24.4	171	79.6	499	119	136	134	77.3	487	3450	47.6
50020	GI-23	200	28	140	84.8	560 †	135	164 †	160 †	77.8	564	4050	52.5
50021	GJ-23	304	28.4	123	67.1 †								
50024	GJ-23	340	23.8	143	79.6	465	113	132	143	66.3	488	3110	44.6
50025	GJ-23	306	26	155	90	463	113	135	130	64.7	519	3910	49
50027	DN-23	263	24.4	161	89.3	408	125	149	141	73.8	481	3520	58.4
50029	AD-23	142 †	13 ††	94.2 ††	53.5 †	198 ††	70.4 †	109 †	108 ††	61.1	280 ††	737 ††	49.7
50032	DE-11	299	24.3	164	86	514	131	139	141	58.4	476	3690	45.2
50037	DE-23	272	24.2	160	83.2	446	114	138	135	64.8	484	4960 ††	49.1
50038	GJ-23					250 ††	93.7	184 ††	91.2 ††				
52283	GJ-23	324	27	164	87.2	466	102	135	127	78.6	644 ††	4520 †	50.1

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Lead (µg Pb/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
10156	GI-23	252 †	23.3	226	4320 †	354 †	413 †	169	101	174 ††	603 ††	456 ††	171 ††
10173	DN-23	156	56.9 †	190	71.4	321	203	133	86.1 †	68.3	295 †	284	0.01
11035	GG-23						0.16 †						
21100	DE-24	153	13.3	206	71	301	236	139	103	86	346	351	20.7
21138	DE-24					238 ††	179	19 ††	51 ††	73.5	315	378	
21196	DE-23	243 †	10.3	195	123 †								
21230	GG-24	174	49 †	28 ††	104	338	275	129	126 †	95	295 †	298	21.1
50004	DE-24	220 †	17.2	266	73	393 ††	328	134	159 ††	77.5	344	326	28.1
50005	GJ-23	2360 †	726 ††	250	255 †	315	287	70.7	273 ††	430 ††	344	502 ††	114 ††
50009	GJ-24	166	13.6	198	71.1	312	238	102	103	82.1	382 †	321	10
50011	DE-24	180	40 †	235	94	318	220	110	107	105	330	305	9
50014	DE-24	167	15	210	62	327	247	110	94.5	94.4	347	320	18.3
50020	GI-23					99.9 ††	190	197 ††	101	10 ††	134 ††	286	15.7
50024	GJ-23	156	76 ††	359 ††	264 †					65	29 ††	40 ††	1
50037	DE-24	142	19.5	180	88.4	328	286	113	101	79.1	338	249	38.2

. Code #	Method Codes	Plant sample identification and values for 2014-15: Magnesium (%Mg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	0.332	0.131	0.337	0.164	1.16	0.122	0.228	0.223	0.198	0.364	0.37	0.11
8888	DE-23	0.305	0.123	0.331	0.152	1.16	0.138 †	0.251 ††	0.242 ††	0.193	0.366	0.349	0.097
10156	GI-23	0.31	0.13	0.32	0.16	1.07	0.146 †	0.246 †	0.217	0.194	0.342	0.339	0.105
10166	AD-01					1.16	0.124	0.217	0.237 †	0.174	0.364	0.319	0.114
10173	DN-23	0.294	0.121	0.302	0.146	1.03	0.124	0.21	0.207	0.188	0.337	0.331	0.106
10181	GF-38	0.332	0.128	0.392 ††	0.174	1.32 ††	0.13	0.22	0.214				
11035	GG-23	0.34	0.13	0.34	0.17			0.28 ††	0.26 ††	0.18	0.35	0.34	0.1
11079	DE-23	0.331	0.136	0.333	0.165	1.08	0.125	0.225	0.224				
20204	GJ-23	0.318	0.143 ††	0.304	0.159	1.11	0.116	0.215	0.209	0.289 ††	0.357	0.391	0.101
21043	GJ-23	0.268 †	0.119	0.316	0.142	1.05	0.126	0.21	0.209	0.182	0.331	0.332	0.1
21100	DE-24	0.313	0.12	0.333	0.157	1.12	0.124	0.225	0.221	0.193	0.361	0.347	0.106
21138	DE-23	0.327	0.132	0.345	0.165	1.1	0.123	0.209	0.214	0.208	0.389 †	0.353	0.111
21190	AD-13	0.245 †	0.13	0.253 ††	0.158	0.807 ††	0.132	0.191 ††	0.199	0.203	0.304 ††	0.298 ††	0.128 ††
21193	GJ-11	0.319	0.118	0.346	0.154	1.08	0.127	0.194 †	0.19 ††	0.18	0.37	0.32	0.108
21195	GI-23	0.431 †	0.138	0.467 ††	0.177	1.42 ††	0.13	0.22	0.21	0.16 ††	0.38	0.3	0.09
21196	DE-23	0.249 †	0.13	0.358	0.165	1.19	0.14 †	0.257 ††	0.259 ††	0.185	0.342	0.34	0.1
21229	GI-23	0.312	0.118	0.327	0.151	1.14	0.122	0.224	0.215	0.2	0.368	0.359	0.105
21230	GG-23	0.297	0.122	0.311	0.149	0.874 ††	0.109 †	0.187 ††	0.184 ††	0.172 †	0.317 ††	0.321	0.107
21232	DE-23	0.31	0.13	0.35	0.17	1.06	0.13	0.22	0.22	0.221 ††	0.41 ††	0.39	0.115
50004	DE-23	0.306	0.119	0.307	0.145	1.25 ††	0.126	0.222	0.219	0.196	0.354	0.346	0.107
50005	GJ-23	0.294	0.13	0.324	0.156	1.09	0.114 †	0.2 †	0.189 ††	0.19	0.358	0.341	0.115
50008	GJ-23	0.325	0.126	0.342	0.161	1.14	0.119	0.219	0.214	0.187	0.355	0.355	0.1
50009	GI-23	0.316	0.13	0.339	0.167	1.11	0.124	0.223	0.216	0.202	0.361	0.355	0.108
50011	DE-23	0.315	0.124	0.335	0.16	1.13	0.13	0.22	0.21	0.21	0.36	0.35	0.11
50012	DN-23	0.304	0.112	0.321	0.148	1.07	0.113 †	0.201 †	0.195 †	0.193	0.34	0.341	0.102
50014	DE-23	0.33	0.134	0.36	0.17	1.23 †	0.139 †	0.245 †	0.242 ††	0.199	0.378	0.362	0.11
50017	DE-23	0.3	0.121	0.327	0.156	1.04	0.114 †	0.208	0.207	0.181	0.339	0.332	0.1
50020	GI-23	0.313	0.125	0.335	0.158	1.13	0.127	0.219	0.221	0.189	0.352	0.321	0.096
50021	GJ-23	0.271 †	0.123	0.263 ††	0.147								
50024	GJ-23	0.304	0.125	0.322	0.157	1.08	0.122	0.217	0.219	0.19	0.348	0.332	0.104
50025	GJ-23	0.292	0.118	0.315	0.149	1.12	0.122	0.22	0.214	0.198	0.369	0.37	0.104
50027	DN-23	0.308	0.114	0.336	0.16	1.09	0.126	0.228	0.22	0.19	0.35	0.364	0.103
50029	AD-23	0.305	0.13	0.327	0.168	1.15	0.14 †	0.248 ††	0.252 ††	0.208	0.36	0.275 ††	0.115
50032	DE-11	0.294	0.112	0.31	0.142	1.18	0.127	0.223	0.22	0.185	0.36	0.345	0.1
50037	DE-23	0.31	0.131	0.323	0.162	1.09	0.125	0.223	0.216	0.196	0.357	0.37	0.101
50038	GJ-23					0.45 ††	0.11 †	0.14 ††	0.13 ††	1.19 ††	2.22 ††	2.32 ††	0.61 ††
52283	GJ-23	0.348 †	0.137	0.36	0.173	1.18	0.151 †	0.269 ††	0.267 ††	0.228 ††	0.391 ††	0.453 ††	0.119

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Manganese (mg Mn/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	52.4	22	15.5	33.5	254	143	79.6	76.4	348	117	160	15.9
8888	DE-23	44.1	20.2	13.8	28.4 †	215 ††	131	72.1	68 †	368	119	148	16.9
10156	GI-23	48.6	20.3	14	31.9	321 ††	213 †	111 ††	99.1 ††	318	110	139	15.1
10166	AD-01					110 ††	21.6 †	67.5 ††	21 ††	299	122	154	23.7 ††
10173	DN-23	49.3	24.7 ††	13.5	30	258	147	80.9	74.8	313	108	146	15.6
11035	GG-23	54	21	14	32					290	100	140	15
11079	DE-23	51.6	20.8	14.9	32								
20204	GJ-23	60.1 †	24.9 ††	23.6 ††	26.8 †	231	123 †	74.7	72.6	225 ††	114	111 ††	7.68 ††
21043	GJ-23	33.7 †	13.7 ††	8.45 ††	24.4 †	248	156	75.1	73.9	335	123	144	11.3 ††
21100	DE-24	47.6	21.1	15.5	33.8	254	142	79.2	75.4	321	114	152	15.3
21138	DE-23	49	23.6	16.2	34.8	256	146	76.8	76.8	355	121	151	15.9
21190	AD-13	48.8	14 ††	15.9	27.2 †	255	157	83.2	81.8	344	117	165	15.5
21193	GJ-11	51.7	18.9	13.5	32.9	240	138	76.4	73.7	296	73 ††	119 ††	15.2
21195	GI-23	50.8	18.8	13.2	32.9	250	120 †	68 †	67 †	382	114	158	15
21196	DE-23	167 †	19.8	14.1	31.1	278 ††	163 †	91.4 †	90.2 ††	338	107	147	14.6
21229	GI-23	46.7	21.2	14.3	31.8	242	144	80.4	76.1	348	112	150	16.4
21230	GG-23	48.2	22	12.9	31.2	194 ††	122 †	65.7 ††	63.7 ††	315	103	139	16.1
21232	DE-23	56.5 †	22.1	16.6	33.6	255	149	82	78	342	122	176 ††	16.1
50004	DE-23	54.6 †	20.4	15.4	31.8	272 †	150	84.1	79.8	360	124	166	17
50005	GJ-23	48.9	21.8	14.9	31.1	244	140	77.5	72.9	319	114	147	16
50008	GJ-23	46.4	19.9	14	30.6	236	135	74.6	71.5	320	106	144	14.4
50009	GJ-23	50	22.8	15.5	34.8	248	147	81.1	77.4	338	114	158	16.4
50011	DE-23	47.5	22	16	32.5	245	152	84	80	357	117	155	18
50012	DN-23	48.1	19.7	15.4	31.5	250	138	75.5	71.6	334	120	157	15.5
50014	DE-23	53.5	21.8	15.6	33.3	273 ††	156	86.5	82.5	349	121	159	16.4
50017	DE-23	52	20.1	15.7	32	249	138	77.7	73.6	324	113	148	15
50020	GI-23	47.9	19.9	16	31.3	275 ††	155	81.9	79.7	340	102	133	13.9
50021	GJ-23	48.7	20.7	13.6	31.4								
50024	GJ-23	48.7	21.4	14.4	32.6	249	142	77.1	76.9	345	118	148	15.9
50025	GJ-13	47	18.6	13	29	243	138	76	71.2	328	115	155	11.3 ††
50027	DN-23	46.6	20.4	15.4	32.1	232	143	80.8	75.9	335	120	153	16.8
50029	AD-23	47	22.9	14	34.9	233	166 †	88.7	89.2 ††	366	107	115 ††	18.5 ††
50032	DE-11	44.4	12.9 ††	10.8 ††	26.4 †	262	147	79.4	77.5	324	114	147	14.4
50037	DE-23	52.7	22.2	15.2	32.4	249	145	79.8	75.8	346	114	164	16.9
50038	GJ-23					354 ††	174 †	128 ††	103 ††	315	101	141	12.7 ††
52283	GJ-23	58.5 †	22.7	16.4	34.8	251	140	80.3	77.5	391 ††	130	180 ††	17.5

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Molybdenum (µg Mo/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-24	64.5	526	745	612	761	154	483	325	81.5	243	785	1620
8888	DE-24					740	140	490	270	80	240	670	1650
10173	DN-23	85.5	545	733	776 †	968 †	191	610 †	313	79.7	241	791	1500
21100	DE-24	53.7	429	660	571	850	141	446	297	136 †	320 ††	1120 ††	1760
21138	DE-24					811	163	526	319		258	847	1960
21196	DE-23	3940 †	719 ††	838 ††	796 †	416 ††	131	260 ††	184 †	10.1 †	272 †	566	1650
21230	GG-24	82	436	681	605	834	191	550	306	77.8	224	688	1510
50004	DE-24	53.1	224 ††	592	380 †	856	276 †	505	346	212 ††	275 †	885	1860
50005	GJ-23	90.7	501	638	589	725	224 †	528	324	137 †	237	650	1760
50009	GJ-24	59.8	495	713	609	753	146	483	276	78	235	750	1660
50011	DE-24	76	470	715	580	728	144	475	275	90	240	804	1600
50014	DE-24	66	517	683	557	710	163	500	273	88.4	247	780	1650
50020	GI-23	150 †	150 ††	150 ††	150 †	360 ††	133	299 ††	286	51.4	193 †	525	1500
50024	GJ-23	63	482	681	575	600 †	105	459	278	42 †	186 †	614	1540
50027	DN-23	106	467	718	579	741	208 †	431	189 †	150 †	65 ††	765	1670
50029	AD-23	20	218 ††	588	487 †	580 †	92.3 †	282 ††	163 ††	144 †	215	598	1400
50037	DE-24	52.7	504	662	599	740	133	471	279	71	236	855	1820
50027	DN-23	249	132	19.4	727	249	102	450	314	44.2	648	267	231
50029	AD-23	201 †	123	50.8	311 †	175	79.8 †	262 ††	229 ††	77	534 ††	252	242
50037	DE-24	256	138	60.1	692	218	108	468	297	66.4	610 †	262	242

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Nitrate nitrogen (mg NO_3-N/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
22	BA-31	12.4	2.13	489	805	1320	11.6	67.1 †	38.2	9.53	3310	421	22.5 †
8888	BB-18									10	2840	420	10
10166	BA-30					1280	36.8 †	24.5	87.1 ††	59.9 ††	3110	297	110 ††
10173	DN-23	1.5	22.3 ††	272	449					13	2890	334	14
20204	BB-30	186 †	5	1080 ††	1790 †	1360	1250 †	32.5	25	2240 ††	2800	1000 ††	537 ††
21100	BB-31	17.3	7.9 †	118 ††	153 †	1410	9.9	80.6 ††	32.2	6.28	1470 ††	161 ††	1.66
21195	GE-31	354 †	238 ††	1740 ††	821	140 ††	1	1 ††	1				
21196	BB-27	0.03	0.258	355	672	929 ††	45 †	207 ††	3.49	6.62	2250	293	8.32
21229	BB-31	16.3	2.63	491	784	1340	13	46	26	3.3	2590	365	4.98
21232	BB-31	3	1	550	895	1370	7.1	37.4	28.4	0.8	2060	242	4.95
50005	BA-30	1.99	0.229	397	617	1310	0.68	24.9	8.46	1.53	2850	248	0.271
50011	BB-31	8	1.2	405	700	1300	5	39	22	7	2750	315	4
50012	BB-31	4.6	0.48	437	692	1370	6.44	34.1	20.7	2.34	2960	338	0.5
50020	BA-31	28.8 †	13.2 ††	551	779	1210	6.43	36.4	21.5	6.35	2360	356	24.2 †
50025	BB-31	46.3 †	10 †	4860 ††	5320 †					16.3	3090	390	53.6 ††
50029	BB-31	6.17	1.4	407	680	1260	17.3	43.9	31.2	13.7	2630	319	9.54
50032	BB-27	5.38	2.46	428	673	1310	3.67	30	17.5	5.7	2900	378	5.2

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Nitrogen (%N)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	**ASP 1410-2**	**ASP 1410-3**	**ASP 1410-4**	**ASP 1502-1**	**ASP 1502-2**	**ASP 1502-3**	**ASP 1502-4**	**ASP 1505-1**	**ASP 1505-2**	**ASP 1505-3**	**ASP 1505-4**
22	CA-27	1.05	1.52	3.29	2.83	3.62	1.91	3.15	3.62	2.93	3.36	1.86	1.99
8888	CA-37	1.02	1.39	3	2.59	3.27	1.8	2.94	3.25	2.64	3.02	1.63	1.71
10156	CA-37	1.02	1.54	3.26	2.91 †	3.51	1.81	3.06	3.46	2.85	3.38	1.84	1.98
10166	GE-30					3.58	2.29 †	2.66 ††	4.29 ††	2.63	3.06	1.55	1.65 ††
10173	CA-37	0.897	1.37	3.11	2.61	3.34	1.78	3.7 ††	3.67	2.6	2.95 †	1.66	1.72
10181	CA-37	1.01	1.45	3.19	2.72	3.52	1.88	3.12	3.54	2.82	3.28	1.86	1.96
11035	CA-37	1.1	1.4	2.8 ††	2.5								
11079	CA-37	1.04	1.5	3.34	2.71	3.36	1.64 †	3.2	2.96 ††	2.82	3.23	1.77	1.92
20204	CA-37	0.871	1.35	3.05	2.56	3.49	1.82	3.12	3.53	2.78	3.22	1.76	1.84
21043	CA-37	0.973	1.47	3.22	2.76	3.38	1.73	3	3.41	3.03 ††	3.45 †	1.93	1.99
21100	CA-37	1.01	1.44	3.11	2.71	3.47	1.83	3.07	3.47	2.69	3.13	1.76	1.84
21138	CA-37	0.673 †	1.33	3.07	2.69	3.49	1.82	3.15	3.61	2.81	3.31	1.85	1.91
21190	GE-38	0.893	1.41	2.98	2.65	2.79 ††	1.49 †	2.5 ††	2.56 ††	2.54	2.96 †	1.6	1.84
21193	GE-32	0.91	1.35	3.01	2.5	3.47	1.85	3.08	3.46	2.67	3.23	1.83	1.87
21195	Not					4.11 ††	2.16 †	2.7 ††	3.38				
21196	CA-37					3.36	1.76	2.93	3.4	2.58	3.1	2.88 ††	1.79
21229	GE-31	0.92	1.38	3.17	2.61	3.33	1.75	2.96	3.36	2.65	3.16	1.81	1.92
21230	CA-37	0.96	1.41	3.14	2.69	3.37	1.74	2.97	3.39	2.8	3.26	1.8	1.94
21232	CA-37	1.09	1.42	3.14	2.65	3.36	1.77	2.99	3.35	2.91	3.1	1.75	1.79
50004	CA-37	1.08	1.48	3.32	2.85 †	3.45	1.87	3.08	3.45	2.67	1.85 ††	1.73	1.89
50005	CA-37	0.93	1.35	3.08	2.59	3.47	1.77	3.16	3.66	2.69	3.23	1.75	1.81
50008	CA-27	0.985	1.42	3.16	2.69	3.47	1.78	3	3.5	2.69	3.16	1.7	1.82
50009	CA-27	1.1	1.44	3.23	2.86 †	3.53	1.87	3.15	3.61	2.74	3.24	1.9	1.86
50011	CA-37	1.01	1.34	3.1	2.61	3.43	1.79	3.03	3.46	2.78	3.2	1.79	1.86
50012	CA-37	0.976	1.4	3.09	2.61					2.89	3.37	1.83	1.93
50014	CA-37	0.963	1.43	3.21	2.8	3.47	1.78	3.01	3.45	2.74	3.21	1.74	1.87
50016	GE-31									2.59	2.99 †	1.63	1.74
50017	CA-37	1.04	1.44	3.27	2.77	3.51	1.93	3.15	3.57	2.87	3.28	1.94	2.02
50020	CA-37	0.939	1.17 ††	2.97	2.36 †	3.24 ††	1.53 †	2.98	3.34	2.5 ††	2.94 ††	1.54	1.59 ††
50021	CA-37	0.982	1.38	3.15	2.63	3.41	1.79	3.05	3.4	2.7	3.2	1.7	1.8
50024	CA-37	1.09	1.44	3.17	2.73	3.53	1.87	3.14	3.57	2.8	3.31	1.85	1.94
50027	CA-37	1.23 †	1.51	3.13	2.64	3.48	1.8	3.12	3.54	2.74	3.22	1.82	1.87
50029	CA-37	1.08	1.42	3.08	2.58	3.5	1.87	3.02	3.41	2.74	3.17	1.76	1.82
50032	CA-37	1.02	1.42	3.14	2.56	3.61	1.85	3.18	3.61	2.7	3.29	1.82	1.85
50037	CA-37	0.931	1.52	3.18	2.68	3.45	1.87	3.02	3.5	2.72	3.18	1.77	1.87
50038	GE-32					3.39	1.77	2.97	3.33	2.51	2.83 ††	1.59	1.7
52283	CA-37	0.969	1.34	3.11	2.67	3.39	1.66	2.97	3.39	2.78	3.37	2.08 ††	1.94

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Phosphorus (%P)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	0.063	0.31	0.256	0.378	0.204	0.159	0.254	0.285	0.127	0.259	0.347	0.29
8888	DE-23	0.052 †	0.277	0.256	0.338	0.211	0.16	0.261	0.283	0.142	0.268	0.32	0.275
10156	GI-23	0.54 †	2.62 ††	2.28 ††	3.27 †	0.206	0.176	0.277	0.29	0.13	0.262	0.327	0.278
10166	BA-30					0.166 ††	0.086 †	0.168 ††	0.191 ††	0.04 ††	0.277	0.15 ††	0.174 ††
10173	DN-23	0.062	0.283	0.26	0.361	0.207	0.165	0.256	0.282	0.143	0.28	0.348	0.29
10181	GF-31	0.056	0.274	0.238 †	0.341	0.208	0.148	0.242	0.285	0.125	0.272	0.351	0.286
11035	GG-23	0.07 †	0.3	0.26	0.38	0.27 ††	0.21 †	0.34 ††	0.37 ††	0.11 ††	0.25	0.34	0.26
11079	DE-23	0.064	0.284	0.245	0.334	0.212	0.159	0.263	0.295				
20204	GJ-23	0.128 †	0.261	0.247	0.321	0.206	0.153	0.252	0.284	0.292 ††	0.257	0.297 ††	0.263
21043	GJ-23	0.05 †	0.278	0.287 ††	0.364	0.229 †	0.162	0.245	0.282	0.128	0.259	0.336	0.272
21100	DE-24	0.06	0.287	0.256	0.378	0.216	0.171	0.277	0.313 ††	0.125	0.252	0.306 †	0.261
21138	DE-23	0.062	0.306	0.265	0.373	0.214	0.155	0.25	0.294	0.141	0.296 ††	0.365	0.312
21190	GE-30	0.001 †	0.212 ††	0.154 ††	0.217 †	0.187 ††	0.049 †	0.232	0.248 ††				
21193	GJ-30	0.059	0.264	0.21 ††	0.339	0.208	0.152	0.252	0.289	0.134	0.265	0.364	0.284
21195	GI-23	0.061	0.31	0.259	0.382	0.2	0.16	0.25	0.29	0.14	0.28	0.4 ††	0.31
21196	DE-23	0.043 †	0.308	0.265	0.38	0.216	0.177	0.295 ††	0.342 ††	0.137	0.264	0.35	0.299
21229	GI-23	0.06	0.265	0.251	0.36	0.216	0.164	0.257	0.281	0.134	0.265	0.346	0.267
21230	GG-23	0.051 †	0.29	0.222 ††	0.345	0.177 ††	0.146	0.24	0.275	0.128	0.255	0.319	0.296
21232	DE-23	0.07 †	0.4 ††	0.26	0.38	0.21	0.17	0.27	0.3	0.16 ††	0.3 ††	0.39 ††	0.31
50004	DE-23	0.062	0.264	0.243	0.332	0.223	0.162	0.252	0.283	0.126	0.233 ††	0.288 ††	0.241
50005	GJ-23	0.055 †	0.291	0.249	0.352	0.21	0.153	0.25	0.281	0.11 ††	0.262	0.318	0.264
50008	GJ-23	0.062	0.29	0.254	0.363	0.211	0.16	0.255	0.289	0.134	0.27	0.346	0.278
50009	GI-23	0.061	0.302	0.268	0.389	0.204	0.161	0.255	0.287	0.128	0.257	0.343	0.283
50011	DE-23	0.065	0.295	0.26	0.365	0.2	0.17	0.27	0.29	0.14	0.26	0.34	0.29
50012	DN-23	0.060	0.275	0.246	0.362	0.193 †	0.148	0.24	0.268	0.132	0.273	0.337	0.282
50014	DE-23	0.063	0.316	0.27	0.38	0.232 ††	0.177	0.286 ††	0.32 ††	0.133	0.279	0.356	0.294
50017	DE-23	0.058	0.274	0.252	0.347	0.195 †	0.148	0.238	0.271	0.123	0.248	0.32	0.26
50020	GI-23	0.06	0.274	0.244	0.346	0.229 †	0.171	0.27	0.311 †	0.119	0.238 †	0.34	0.241
50021	GJ-23	0.066	0.301	0.256	0.37								
50024	GJ-23	0.061	0.281	0.251	0.357	0.21	0.155	0.25	0.285	0.13	0.268	0.336	0.268
50025	GJ-23	0.081 †	0.289	0.34 ††	0.369	0.21	0.155	0.26	0.29	0.125	0.263	0.348	0.273
50027	DN-23	0.059	0.262	0.272	0.368	0.203	0.16	0.264	0.297	0.131	0.272	0.341	0.255
50029	AD-23	0.073 †	0.308	0.281 †	0.407	0.232 ††	0.195 †	0.302 ††	0.338 ††	0.143	0.258	0.307 †	0.272
50032	DE-30	0.065	0.27	0.256	0.337	0.211	0.157	0.252	0.278	0.125	0.24 †	0.335	0.27
50037	DE-23	0.062	0.288	0.259	0.37	0.206	0.162	0.261	0.292	0.127	0.259	0.337	0.272
50038	GJ-23					0.23 ††	0.15	0.25	0.25 ††	0.12	0.23 ††	0.32	0.24
52283	GJ-23	0.068	0.32	0.272	0.389	0.231 ††	0.172	0.286 ††	0.323 ††	0.144	0.286 †	0.381 ††	0.298

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Potassium (%K)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	0.573	0.228	3.23	2.35	5.02	1.05	2.35	2.54	0.835	3.88	2.28	0.378
8888	DE-23	0.495	0.196	3.22	2.15	5.27	1.07	2.45	2.61	0.832	4.01	2.33	0.358
10156	GI-23	0.47	0.2	2.7	1.95	3.76 ††	1.03	2.21	2.16	0.816	3.57	2.11	0.377
10166	AD-01					5.05	0.908	2.09	2.33	0.763	3.66	2.04	0.33
10173	DN-23	0.502	0.228	3.17	2.31	4.7	1.01	2.33	2.41	0.825	3.77	2.2	0.359
10181	GF-38	0.446	0.182	3.23	2.21	4.43	0.898	2.06	2.22				
11035	GG-23	0.57	0.22	3.2	2.3					0.74	3.5	2	0.33
11079	DE-23	0.495	0.23	2.3 ††	1.54 †								
20204	GJ-23	0.851 †	0.322 ††	2.24 ††	1.92	4.94	0.87 †	2.11	2.4	0.782	3.53	1.89 †	0.3
21043	GJ-23	0.499	0.211	3.3	2.2	5.03	1.04	2.05	2.38	0.773	3.46	2.18	0.341
21100	DE-24	0.53	0.216	3.03	2.18	4.69	0.975	2.23	2.44	0.786	3.68	2.12	0.351
21138	DE-23	0.561	0.225	3.11	2.25	4.36	0.954	2.06	2.33	0.77	3.7	2.08	0.341
21190	GE-09	0.44	0.145 ††	1.62 ††	0.953 †	3.14 ††	0.929	1.27 ††	1.5 ††	0.683 ††	3.18 ††	1.82 ††	0.294
21193	GJ-11	0.594	0.219	2.94	2.09	4.68	0.99	2.23	2.41	0.74	3.66	2.24	0.36
21195	GI-23	0.513	0.215	3.44	2.19	5.28	1	2.32	2.5	0.74	3.82	2.19	0.31
21196	DE-23	0.312 †	0.16 †	2.59 †	1.85 †	5.01	1.08	2.57	2.77	0.807	3.6	2.14	0.344
21229	GI-23	0.529	0.209	3.08	2.18	4.85	1.02	2.3	2.43	0.806	3.84	2.25	0.364
21230	GG-23	0.536	0.229	3.14	2.26	3.26 ††	0.835 †	1.78 ††	1.94 ††	0.75	1.66 ††	1.44 ††	0.343
21232	DE-23	0.45	0.2	3.01	2.19	4.55	0.96	2.1	2.27	0.86	3.92	2.26	0.39
50004	DE-23	0.497	0.184	3	2.21	5.23	1.03	2.45	2.6	0.783	3.45	2.09	0.343
50005	GJ-23	0.581	0.301 ††	2.9	2.02	4.76	0.952	2.02	2.19	0.81	3.68	2.02	0.399
50008	GJ-23	0.562	0.223	3.3	2.32	4.84	1.05	2.34	2.63	0.805	3.98	2.17	0.354
50009	GI-23	0.542	0.218	3.43	2.42	4.96	1.04	2.37	2.59	0.815	3.95	2.26	0.358
50011	DE-23	0.54	0.212	3.15	2.17	4.7	1.03	2.3	2.5	0.84	3.75	2.2	0.37
50012	DN-23	0.506	0.197	2.82	1.82 †	4.61	1.12	2.12	2.3	0.821	3.78	2.15	0.342
50014	DE-23	0.581	0.233	3.4	2.41	5.33	1.12	2.5	2.75	0.809	3.9	2.21	0.379
50017	DE-23	0.504	0.213	2.93	2.06	4.3	0.911	1.98	2.25	0.772	3.42	2.07	0.348
50020	GI-23	0.473	0.194	2.79	1.97	5.07	0.995	2.19	2.43	0.729	3.46	2.01	0.298
50021	GJ-23	0.752 †	0.24	3.09	2.34								
50024	GJ-23	0.525	0.2	2.99	2.11	4.61	0.963	2.1	2.32	0.774	3.82	2.04	0.326
50025	GJ-23	0.516	0.181	3.02	2.12	4.24	1.04	2.2	2.46	0.738	2.95 ††	2.08	0.315
50027	DN-23	0.53	0.199	3.04	2.15	4.03 †	1.01	2.22	2.39	0.772	3.54	2.22	0.348
50029	AD-23	0.49	0.167	3.1	2.22	5.16	1.08	2.45	2.69	0.803	3.85	2	0.302
50032	DE-11	0.515	0.195	2.83	2	4.96	1.04	2.3	2.51	0.807	3.84	2.26	0.39
50037	DE-23	0.62 †	0.206	3.07	2.23	4.8	0.981	2.24	2.47	0.801	3.7	2.15	0.346
50038	GJ-23					0.13 ††	0.11 †	0.12 ††	0.11 ††	4.99 ††	17.9 ††	13.9 ††	2.15 ††
52283	GJ-23	0.602	0.238	3.03	2.36	5.13	1.19 †	2.63	2.66	0.994 ††	3.78	2.48 ††	0.414 ††

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Selenium (mg Se/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-24	38.2	63.1	32.4	61.1	168	25.5	23.9	88.7	32.1	87.3	91.8	809
8888	DE-24					150	20	20	90	30	100	70	780
10156	GI-23	599 †	825 ††	587 ††	782 †	5560 ††	220 †	339 ††	396 ††	1940 ††	1150 ††	713 ††	992
10173	DN-23	28	58.5	8.33	63.1	46.8	33	15	76.2	38.2	64.4	51.9	753
21100	DE-24	317 †	359 ††	132 †	73.2	1760 ††	131 †	16.9	94.2	594 ††	2590 ††	526 ††	999
21138	DE-24					114	21.8	19	86	32.2	74.2	76.4	764
21230	GG-24	56.5	97.3 †	185 ††	151 †	201	97.3 †	89.9 ††	157 ††	360 ††	975 ††	617 ††	875
50004	DE-24	10.1	25 †	26	30	70	40	35 †	50 ††	51.2	79.6	75.5	98.8 ††
50005	GJ-23	233 †	212 ††	136 †	71.6	105	94.3 †	292 ††	109 †	419 ††	101	298 ††	826
50009	GJ-24	28.5	58.5	38.3	50.4	136	28.5	28.4	90	37.6	111	126 †	835
50011	DE-24	40	60	45	50	115	20	26	86	41	83	80	770
50014	DE-24	38	70	42	59	200	85 †	103 ††	117 †	47.5	93	107	850
50020	GI-23					25.1	21.6	17.8	15.7 ††	10 †	44.8	61.5	10 ††
50037	DE-24	24.9	32.6	67.6	85.6	108	24.9	20.2	83	34	84	79	1010
50024	GJ-23	5 †	178 ††	5 ††	5	5	5 †	5	5	50	5	5 †	159 ††
50037	DE-24	82.6	19.3	25.51	47.1	818 ††	33	16.8	50.1	33.2	751 ††	43.5	12

Lab. Code #	Method Codes	Plant sample identification and values for NOT ASSESSABLE 2014-15: Silicon (%Si) NOT ASSESSABLE											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
21100	DE-24	0.049	0.017	0.052	0.02	0.037	0.034	0.08	0.033	0.031	0.044	0.039	0.022
21138	DE-23					0.118	0.079	0.33	0.1	0.028	0.12 †	0.195	0.016
21196	ZZ-23	0.112 †	0.016	0.112	0.013	0.299 †	0.446 †	1.5 †	1.65 ††	0.014	0.281 ††	2.65 ††	0.005
21229	ZZ-23	0.099 †	0.016	0.106	0.003								
50005	DE-23	0.045	0.009	0.077	0.005	0.063	0.043	0.123	0.036	0.014	0.051	0.308	0.012
50008	ZZ-23	0.266 †	0.022	0.198	0.025	0.406 ††	0.141	2.7 ††	0.176 †	0.067 ††	0.487 ††	3.39 ††	0.047
50020	GI-23					0.01	0.006	0.027	0.014	0.02	0.035	0.038	0.025
50037	DB-31	0.044	0.011	0.057	0.007	0.064	0.066	0.93	0.048	0.015	0.052	2.47 ††	0.013

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Sodium (%Na)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	0.062	0.001	0.008	0.21	2.43	0.021	0.042	0.115	0.096	0.765	0.473	0.009
8888	DE-23	0.057	0.001	0.007	0.189	2.45	0.032 †	0.044	0.118	0.099	0.731	0.461	0.014 ††
10156	GI-23	0.62 †	0.01 ††	0.06 ††	2.06 †	2.06	0.033 †	0.048	0.109	0.091	0.696 †	0.437	0.01
10166	AD-01					2.4	0.029	0.047	0.112	0.145 ††	0.907 ††	0.573 ††	0.047 ††
10173	DN-23	0.058	0.001 †	0.007	0.195	2.37	0.025	0.045	0.117	0.095	0.731	0.456	0.009
11035	GG-23	0.06		0.01	0.21		0.02	0.05	0.12	0.09	0.7 †	0.52 ††	0.01
11079	DE-23	0.064	0.004 ††	0.01	0.183								
20204	GJ-23	0.055	0.002 ††	0.006	0.142 †	2.35	0.025	0.042	0.109	0.563 ††	0.766	0.642 ††	0.006 ††
21043	GJ-23	0.06	0.001	0.009	0.193	2.42	0.025	0.042	0.113	0.097	0.775	0.464	0.011
21100	DE-24	0.059	0.001 †	0.008	0.204	2.39	0.02	0.043	0.116	0.094	0.752	0.467	0.009
21138	DE-23	0.066	0.001 †	0.009	0.214	2.24	0.021	0.041	0.118	0.101	0.714	0.463	0.009
21190	AD-09	0.064	0.001	0.011	0.219	1.84 ††	0.045 †	0.021 ††	0.097 ††	0.103 †	0.648 ††	0.444	0.015 ††
21193	GJ-11	0.065	0.005 ††	0.014 ††	0.182	2.19	0.024	0.045	0.12	0.094	0.747	0.511 †	0.013 ††
21195	GI-23	0.06	0.001	0.008	0.221	2.88 ††	0.02	0.04	0.12	0.08 ††	0.74	0.45	0.01
21196	DE-23	0.046 †	0.001 †	0.008	0.18	2.41	0.025	0.046	0.124	0.098	0.703 †	0.442	0.026 ††
21229	GI-23	0.059	0.001	0.007	0.198	2.24	0.021	0.043	0.118	0.096	0.75	0.456	0.008
21230	GG-23	0.064	0.002 ††	0.009	0.205	2 †	0.02	0.039	0.1 ††	0.086 †	0.628 ††	0.406 †	0.009
21232	DE-23	0.07	0.01 ††	0.01	0.2	2.51	0.02	0.04	0.11	0.124 ††	0.87 ††	0.432	0.02 ††
50004	DE-23	0.058	0.001	0.008	0.18	2.61	0.023	0.045	0.118	0.095	0.73	0.453	0.009
50005	GJ-23	0.066	0.001 †	0.009	0.225	2.37	0.022	0.046	0.136 ††	0.1	0.738	0.461	0.009
50008	GJ-23	0.067	0.004 ††	0.011	0.221	2.26	0.028	0.048	0.13	0.097	0.741	0.439	0.009
50009	GI-23	0.063	0.001 †	0.009	0.218	2.39	0.021	0.043	0.12	0.097	0.756	0.483	0.009
50011	DE-23	0.063	0.001	0.008	0.2	2.5	0.026	0.046	0.12	0.1	0.75	0.48	0.01
50012	DN-23	0.057	0.001 †	0.007	0.191	2.19	0.018	0.037 †	0.099 ††	0.093	0.745	0.445	0.009
50014	DE-23	0.069	0.0004 †	0.008	0.229	2.54	0.026	0.047	0.129	0.095	0.774	0.484	0.01
50017	DE-23	0.061	0.007 ††	0.01	0.204	2.12	0.019	0.044	0.11	0.09	0.717	0.449	0.009
50020	GI-23	0.056	0.002 ††	0.009	0.181	2.33	0.023	0.043	0.114	0.092	0.737	0.43	0.008
50024	GJ-23	0.062	0.001	0.008	0.199	2.27	0.019	0.04	0.114	0.095	0.747	0.447	0.008
50025	GJ-23	0.043 †	0.001	0.002 ††	0.19	1.24 ††	0.006 †	0.029 ††	0.111	0.067 ††	1.03 ††	0.581 ††	0.01
50027	DN-23	0.059	0.001 †	0.008	0.199	2.07	0.028	0.045	0.12	0.095	0.709	0.474	0.01
50029	AD-23	0.065	0.001	0.02 ††	0.19	2.82 ††	0.03	0.047	0.117	0.102	0.682 †	0.382 ††	0.01
50032	DE-11	0.052	0.002 ††	0.008	0.167	2.41	0.023	0.043	0.122	0.103 †	0.76	0.44	0.01
50037	DE-23	0.054	0.003 ††	0.016 ††	0.196	2.28	0.022	0.04	0.112	0.094	0.745	0.446	0.008
50038	GJ-23					0.68 ††	0.01 †	0.01 ††	0.03 ††	0.3 ††	2.04 ††	1.45 ††	0.11 ††
52283	GJ-23	0.078 †	0.002 ††	0.01	0.235	1.76 ††	0.043 †	0.052 †	0.124	0.125 ††	0.839 ††	0.532 ††	0.01

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Sulfur (%S)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	0.092	0.122	0.256	0.791	0.559	0.149	0.215	0.189	0.177	0.597	0.256	0.14
8888	DE-23	0.082	0.131	0.274	0.713	0.602	0.161	0.243 †	0.208	0.194 ††	0.595	0.238	0.142
10156	GI-23	0.09	0.1	0.1 ††	0.15 †	0.707 ††	0.198 †	0.26 ††	0.208	0.179	0.528	0.248	0.148
10166	BA-30					1.14 ††	0.13	0.207	0.258 ††	0.016 ††	1.13 ††	0.338 ††	0.066 ††
10173	DN-23	0.077	0.103	0.241	0.745	0.565	0.148	0.222	0.185	0.168	0.545	0.227	0.115
11035	GG-23		0.1	0.23	0.78	0.64 ††	0.18 †	0.25 ††	0.21 †	0.11 ††	0.57	0.16 ††	0.1 ††
11079	DE-23	0.083	0.106	0.228	0.67	0.415 ††	0.105 †	0.153 ††	0.137 ††				
20204	GJ-23	0.117 †	0.111	0.234	0.598 †	0.548	0.133	0.203	0.178	0.153 ††	0.589	0.176 ††	0.137
21043	GJ-23	0.083	0.114	0.273	0.766	0.549	0.149	0.202	0.182	0.166	0.57	0.236	0.125
21100	CA-37	0.129 †	0.151 ††	0.278	0.757	0.551	0.168	0.23	0.205	0.167	0.458 ††	0.221	0.137
21138	DE-23	0.089	0.117	0.258	0.761	0.539	0.139	0.196	0.179	0.177	0.642 †	0.235	0.131
21196	DE-23	0.108 †	0.123	0.246	0.754	0.548	0.155	0.24	0.208	0.17	0.563	0.244	0.129
21229	GI-23	0.085	0.111	0.25	0.757	0.529	0.146	0.213	0.178	0.179	0.573	0.253	0.135
21230	GG-23	0.087	0.114	0.219	0.712	0.417 ††	0.136	0.201	0.175	0.171	0.563	0.238	0.14
21232	DE-23	0.09	0.12	0.26	0.77	0.54	0.15	0.21	0.19	0.18	0.63	0.32 ††	0.14
50004	DE-23	0.084	0.102	0.235	0.801	0.56	0.141	0.209	0.181	0.175	0.551	0.213	0.11
50005	GJ-23	0.083	0.109	0.236	0.674	0.545	0.124	0.181	0.159 †	0.171	0.591	0.243	0.13
50008	GJ-23	0.092	0.119	0.262	0.782	0.583	0.152	0.221	0.196	0.191 †	0.647 †	0.264	0.141
50009	GI-23	0.085	0.118	0.253	0.745	0.547	0.146	0.212	0.185	0.171	0.583	0.252	0.135
50011	DE-23	0.083	0.11	0.255	0.73	0.51	0.13	0.2	0.17	0.18	0.6	0.24	0.14
50012	DN-23	0.086	0.11	0.247	0.724	0.526	0.14	0.199	0.175	0.179	0.591	0.246	0.133
50014	DE-23	0.094	0.124	0.25	0.751	0.592	0.164	0.235	0.209 †	0.176	0.606	0.253	0.138
50017	DE-23	0.086	0.113	0.251	0.736	0.507	0.136	0.196	0.178	0.165	0.55	0.233	0.126
50020	GI-23					0.604	0.151	0.213	0.191	0.188	0.812 ††	0.262	0.132
50021	GJ-23	0.12 †	0.123	0.286	0.774								
50024	GJ-23	0.084	0.1	0.235	0.697	0.534	0.131	0.191	0.172	0.179	0.568	0.232	0.117
50025	GJ-23	0.087	0.104	0.243	0.708	0.566	0.142	0.206	0.181	0.164	0.587	0.248	0.13
50027	DN-23	0.077	0.102	0.253	0.714	0.516	0.142	0.214	0.186	0.168	0.557	0.251	0.12
50029	CA-37	0.089	0.115	0.233	0.711	0.42 ††	0.129	0.216	0.179	0.177	0.499 ††	0.219	0.125
50032	DE-30	0.123 †	0.116	0.26	0.593 †	0.58	0.167	0.186	0.193	0.175	0.562	0.347 ††	0.15
50037	DE-23	0.091	0.112	0.237	0.785	0.552	0.141	0.209	0.186	0.169	0.586	0.246	0.124
50038	GJ-23					0.52	0.08 †	0.16 ††	0.099 ††	0.16	0.53	0.23	0.11
52283	GJ-23	0.097	0.124	0.271	0.807	0.603	0.151	0.224	0.201	0.194 ††	0.654 ††	0.272	0.142

Lab. Code #	Method Codes	Plant sample identification and values for 2014-15: Zinc (mg Zn/kg)											
		October 2014 (Round 114)				*February 2015 (Round 314)*				*May 2015 (Round 514)*			
		ASP 1410-1	ASP 1410-2	ASP 1410-3	ASP 1410-4	ASP 1502-1	ASP 1502-2	ASP 1502-3	ASP 1502-4	ASP 1505-1	ASP 1505-2	ASP 1505-3	ASP 1505-4
22	DE-23	9.62	18.5	19.5	27.3	51.7	83.4	28.3	31	20.6	40	52.8	20.4
8888	DE-23	7.49	15.6	18.4	24	47.8	74.6	27.1	28	21.7	41.8	52.2	19.7
10156	GI-23	7.17	14.7	15.2 ††	21.2 †	29.1 ††	48.8 †	48.3 ††	79.9 ††	12.8 ††	26.6 ††	33 ††	11.6 ††
10166	AD-01					23.3 ††	66.1	24.8	29	41 ††	64.6 ††	79.6 ††	45.1 ††
10173	DN-23	8.12	15.9	18.4	26.2	50.4	81.5	28.5	29	17.7 †	33.3	44.3	15.8 ††
11035	GG-23		18	17	25	47	81	28	28	17 ††	32 †	43	19
11079	DE-23	9.39	16.3	18.6	24.8	55.5	85.1	29.4	30.6				
20204	GJ-23	19.3 †	22.7 ††	23.9 ††	25	48.4	73.1	27.7	29.4	61.2 ††	39.3	58	22.5 ††
21043	GJ-23	6.66 †	15.7	17.5	22.9	50.9	77.2	29.2	26.9	18 †	35.1	46.7	17.6
21100	DE-24	8.12	15.9	17.2	24.1	53.6	79.5	26.8	31.2	19.3	40	52.8	18.4
21138	DE-23	8.98	17.9	19.7	27.6	51.2	77.1	24.9	29	20.3	40.8	51.7	18.5
21190	AD-13	11.7 †	19.7 ††	23.5 ††	29.5 †	57.6	72.6	28.1	32.2				
21193	GJ-11	9.62	16.1	17.6	25	24 ††	36.9 †	27.2	29.5	21	37.1	46.7	20
21195	GI-23	12.6 †	14.9	20.2	21.9 †	53	62 †	25	26	19.4	36.4	46.4	17.3
21196	DE-23	9.9	17.6	19.9	27.4	55.7	94.1 †	45.5 ††	36.3 ††	19.5	37.3	52.5	18.3
21229	GI-23	8.07	16.6	17.7	24.9	48.1	72.8	26.5	28.3	20.6	39.5	50.4	19.6
21230	GG-23	8.7	16.8	15.7 †	24.3	42.7 †	70.5	24.8	26.6	18.7	35.1	47.5	19.1
21232	DE-23	11	15.5	18.9	25.5	52.4	81.3	29	29	21.8	45.3	53.4	19.5
50004	DE-23	9.03	16.4	17.7	23.4	52.3	73.1	29.8	31.2	19.8	36.3	50.5	19.3
50005	GJ-23	24.6 †	23.2 ††	18.1	24.7	51.2	77.9	35.2 ††	25.9	20.7	39.4	49.5	25.8 ††
50008	GJ-23	9.03	16.5	18	24.8	48.7	73.6	26.6	28.1	19.4	36.7	47.8	18.5
50009	GI-23	8.64	16.7	18.6	26.3	50.6	77.8	27.3	29.6	20.4	39	54.8	19.9
50011	DE-23	8.45	16.7	18.7	25	49	78	29	29	21	40	51	20
50012	DN-23	9.23	15.9	18.2	25.1	47.6	74.2	25.8	27.2	20.7	38.6	49.8	18.5
50014	DE-23	9.31	17.6	19.9	26.9	57.4	87.1	29.9	32.2	20.8	42	54.2	19.7
50017	DE-23	11	16.8	19.5	25.4	49.2	72.9	24.1	27.5	20.5	39.5	52.3	23.9 ††
50020	GI-23	12.3 †	18.2	22.2 ††	28.2 †	57.8	82.4	33.2 †	31.5	17.3 †	31.8 †	41 †	16 ††
50021	GJ-23	8.42	18.4	15.2 ††	24.4								
50024	GJ-23	8.98	16.7	18.3	27	53.4	79.6	29.2	30.8	20.3	36.7	46.6	20
50025	GJ-23	12.1 †	17.5	19	32.1 †	47.9	73.5	26.3	26	13.6 ††	48.3 ††	79.5 ††	14.5 ††
50027	DN-23	8.43	16	18.6	25.2	49.1	77.4	28.8	29.8	19.7	40.8	52.6	18.9
50029	AD-23	8.2	16.6	18.6	27.4	52.6	88.1	32	34.2 ††	21.7	39	34 ††	20.9
50032	DE-11	8.7	15.7	18.6	23.1	54.6	81.5	28.3	29.6	20.6	41.8	52.9	18.4
50037	DE-23	9.47	17.4	18.5	25.9	50.4	78.1	27.4	29.2	20.7	39.3	49.2	19
50038	GJ-23					66.8 ††	760 †	30.6	30.1	13.7 ††	29.3 ††	40.1 ††	9.62 ††
52283	GJ-23	11.8 †	19.3 †	20.7 †	27.1	51.6	74.4	29.1	31.1	22.4	41.4	56.3	20.5