Australasian Soil and Plant Analysis Council Inc.

ASPAC Plant Proficiency Testing Program Report

2005-06

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Foreword

One of the main activities listed in ASPAC's original *Membership Information and Objectives Brochure* in 1990 was to *"conduct regular National Quality Assurance Programs to enhance standards of the analysis and assist standardisation of soil and plant analytical methods across laboratories".* For the next dozen years, soil and plant inter-laboratory quality assurance programs of ASPAC operated at around 12 to 18 month intervals with only minor changes. Members of ASPAC's Laboratory Proficiency Committee overviewed these programs and discussed them nationally and internationally.

This annual report is the second in the upgraded inter-laboratory proficiency program (ILPP) for plant chemical tests, the first being the 2004-2005 report. It covers three "rounds" each of four specially prepared samples sent to 30 participants in November 2005, in February 2006 and in April 2006. There is a companion 2005/06 annual report covering soil chemical tests.

ASPAC's Laboratory Proficiency Committee, the membership of which is listed on page iv, oversaw the program. The ASPAC Executive is grateful to all of those who contributed to the report, inclusive of staff of Proficiency Services Limited, New Zealand, our service provider.

The ASPAC Executive also appreciates the effort and commitment made by participating laboratories. We recognise that laboratories share responsibility for measurement quality.

David Orr
 ASPAC Chairperson 2006-2008

Acknowledgements

Membership of ASPAC Laboratory Proficiency Committee (LPC) 2005-06

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PS. D.J. Lyons <Dave.Lyons@nrw.qld.gov.au> joined the LPC in December 2007, replacing Dr Peverill. Dr Hill assumed the role of Convenor in December 2007.

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Contents

Your Notes

1. Introduction

The Australasian Soil and Plant Analysis Council Inc (ASPAC) commenced its not-for-profit ILPPs and issued its first soil program report in 1993. Its ILPPs specifically target soil and plant chemical laboratories in the Australasian region, although there are no restrictions on who can participate. A service provider operates the programs for ASPAC under contract.

ILPPs support ASPAC's overall goals to:

- promote excellence in all aspects of soil and plant analysis
- encourage and promote the adoption of preferred methods and protocols used in soil and plant analysis within Australasia.

More details on ASPAC can be obtained from its public web site at www.aspac-australasia.com. The site includes ASPAC's Strategic Plan and the names of its elected and appointed office holders.

Published ASPAC plant ILPP reports are dated 1994, 1996, 1998, 1999, 2000, 2001, 2002 and 2004-05. All to and including 2002 were conducted and reported through an Australian provider as discrete entities, based on six homogeneous samples of dried and ground plant materials and subsequent laboratory analysis for a comprehensive range of plant chemical tests, mostly for total elements.

This is the second annual report from ASPAC's new, upgraded plant ILPP that commenced in 2004 and now operates out of New Zealand through PSL. The program is a composite of three "rounds", each of four homogeneous samples of dried and ground plant materials. Laboratory participants (Appendix 1) receive individual electronic progress reports of their results (relative to other participating laboratories) for each of these "rounds". They also receive from the service provider a consolidated, individual annual summary report on their measurement performance relative to others.

This annual program report consolidates (for ASPAC members and the public record) the three "rounds" that occurred in November 2005, in February 2006 and in April 2006. It also records program methodology, summary statistics, and a listing of "raw" data by test and laboratory for the three "rounds". In addition, the report includes an outline of how ASPAC periodically confers performance-based, method-specific certification to laboratories that regularly participate. To respect confidentiality, the cross-reference between laboratory name and laboratory identification number is not included. However, ASPAC's public web site now lists the laboratories certified as proficient for specific tests for the most recently completed program year. ASPAC's plan is to update information on certified tests and certifications for participating laboratories soon after completion of each annual program for both plants and soils.

2. Program Details

2.1 Responsibilities

PSL was contracted by ASPAC as the plant ILPP provider for 2005-06. Accordingly, PSL had responsibility on a "round-by round" basis for sourcing and preparing samples and for the timely supply of samples to participating laboratories. They also undertook data collation and statistical analysis and "round-by-round" reporting for ASPAC and assembled the summary and "raw" data provided in Section 3 and Appendix 4, respectively. PSL is a proficiency service provider accredited to *ISO Guide 43-1 Part 1: "Development and operation of proficiency testing schemes"*.

ASPAC's Laboratory Proficiency Committee (LPC; see Page iv) had responsibility to implement and resolve matters of policy and to provide guidance on technical matters specific to soil and plant chemical testing both to PSL and to laboratory participants. The LPC also undertook statistical checks and audits for quality control purposes, participated in a Technical Advisory Group operated by PSL, and contributed to training workshops. ASPAC, through members of its LPC or via its state representatives, may contact managers of laboratories with poor analytical performance to ensure a measurement improvement program is commenced. Laboratories are encouraged to seek help from ASPAC if they are shown to be operating at levels of measurement performance below their peers.

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

2.2 Plant program participation

Thirty laboratories arranged to participate in the ASPAC plant ILPP in 2005-06, but the numbers that reported results varied by "round" and plant test (see Table 1). The most commonly reported tests with an average of 29 laboratories across the three "rounds" were sodium (Na), phosphorus (P), calcium (Ca) and magnesium (Mg). The least frequently reported tests were silicon (Si), selenium (Se), lead (Pb) and cadmium (Cd), with averages of 7, 9, 10 and 11 laboratories, respectively. The counts for each test and sample are given in Table 1 and in Section 3.

Contact details for laboratories that submitted results for any test in one or more of the three rounds are provided in Appendix 1.

2.3 Tests and methods

Three proficiency "rounds" for plant materials – each comprising four samples – were offered for the 2005-06 program. Participants were invited to analyse each sample using methods normally employed in their laboratory. The number of tests was limited to 21 as in 2004-05, and as listed in Table 1, noting that participants were not obliged or required to submit results for all tests. In order to permit a meaningful statistical analysis, a minimum of six participating laboratories was required for any one test.

Table 1. Plant tests (total elements), elemental symbols, units and the arithmetic average number of results per round submitted by participating laboratories in the ASPAC 2005-06 plant ILPP

2005-06 Plant tests	Symbol	Units	Number of participants		
			Nov 05	Feb 06	Apr 06
Aluminum	Al	mg/kg	19	18	19
Boron	B	mg/kg	28	26	24
Cadmium	Cd	mg/kg	12	11	11
Calcium	Ca	%	29	29	29
Carbon	C	%	13	15	15
Chloride	Cl	%A	20	21	19
Cobalt	Co	mg/kg	14	13	14

2005-06 Plant tests	Symbol	Units	Number of participants		
			Nov 05	Feb 06	Apr 06
Copper	Cu	mg/kg	29	28	28
Iron	Fe	mg/kg	28	26	27
Lead	Pb	mg/kg	10	10	11
Magnesium	Mg	%	29	29	29
Manganese	Mn	mg/kg	29	28	28
Molybdenum	Mo	mg/kg	15	14	15
Nitrogen	N	%	28	27	28
Phosphorus	P	%	29	29	29
Potassium	K	%	29	29	28
Selenium	Se	mg/kg	11	8	10
Silicon	Si	%	6	7	7
Sodium	Na	%	30	29	29
Sulfur	S	%	27	26	25
Zinc	Zn	mg/kg	29	28	28

A   Units of mg/kg are preferred for concentrations < 0.01%

All of the listed tests were understood to be total concentrations in dry plant material, reported on a 65°C oven dry basis. Details of the analytical methods used by each laboratory were known to include Kjeldahl digestion, other forms of acid digestion, XRF, and near-infrared spectroscopy, with measurement by continuous flow, ICP-AES, ICP-MS, atomic absorption and the like. It follows that some results reported as "totals", such as Si, may only reflect acid digestible concentrations.

2.4   Sample preparation and identification

ASP 113, ASP 21, ASP 23, ASP 42 and ASP 43 were prepared by the North American Proficiency Testing Program, while samples ASP 111, ASP 112, ASP 114, ASP 22, ASP 24, ASP 41, and ASP 44 were prepared by Victoria's DPI-Werribbee. All material was re-mixed and sub-sampled into 20 g portions at PSL.

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)[1]. These sub-samples were then tested in duplicate for plant total N, using Dumas combustion. The tests were conducted in an ISO 17025 accredited laboratory.

Results from the 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, except in one case. Sample ASP43 was distributed to laboratories but was withdrawn from detailed statistical analysis for certification purposes. Examples of the homogeneity data and statistical assessments are summarised in Appendix 2.

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

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[2].

Ultimately, the samples used in the three "rounds" of the 2005-06 program were distributed and coded as follows: round 105 of November 2005 – ASP 111-114; round 205 of February 2006 – ASP 21-24; and round 505 of April 2006 – ASP 41-44. The association between sample code and sample type is provided in Table 2.

Table 2. Sample identification numbers and sample types included in the ASPAC 2005-06 plant ILPP

Sample ID	Sample type
ASP 111	Whole Oats
ASP 112	General Mix
ASP 113	Citrus
ASP 114	Peanut Forage
ASP 21	Corn
ASP 22	Mixed Pasture
ASP 23	Grape Petiole
ASP 24	Pine Branches
ASP 41	Wheat
ASP 42	Hay
ASP 43 *	Cotton Petioles
ASP 44**	Tea

*   Assessments for ASP 43 were withdrawn because the sample was not considered sufficiently homogenous according to ISO REMCO Protocol N231 "*Harmonised Proficiency Testing Protocol*" of January 1992.

**   This sample was included in the 2004-05 annual ILPP

2.5   Data analysis and periodic reporting

Laboratory results, after submission to PSL, were entered into a database and independently checked for data transfer accuracy prior to data processing. 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[3,4] is suited to datasets of as few as six to eight 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.

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[2]   Rayment, G.E (2006). Australian efforts to prevent the accidental movement of pests and diseases in soil and plant samples. *Commun. Soil Sci. Plant Anal.,* 37, 2107-2117.

[3]   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. *Commun. Soil Sci. Plant Anal. 31*, 1513-1530.

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

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

Statistical term	*Meaning and/or derivation*
Count or number	Original population size.
Maximum i	The highest of a range of values, based on the initial data set.
Minimum i	The lowest of a range of values, based on the initial data set.
Median	The median is the score at the 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[5]. 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[6]	The robust coefficient of variation (Robust % CV) = (100 x normalised IQR / median). For simplicity, the Robust %CV shown is for the initial results, and for "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 in data summaries.	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.

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[5]   SAS Procedure Guide

[6]   "Guide to NATA Proficiency Testing". 27 pp. (National Association of Testing Authorities, Australia, December 1997).

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.

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 second decimal point, such as 0.01 mg/kg or 0.01 %, rather than to three significant figures. However, the program (like others nationally and internationally) did not accept as a numeric value, 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 report a value half way between that value and zero. For high values, dilution was the expected option. In practice, this did not always occur in 2005-06, witnessed by the inclusion of a few zero values in the "raw" data compilations in Appendix 4.

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 the service provider went to all participating laboratories. Its main purpose was to assist in the interpretation of interim reports. Also included in the Newsletter was information about upcoming events and operational administration of the program.

Laboratories that participated in the 2005-06 plant ILPP all received from PSL (on behalf of ASPAC) a laboratory specific, confidential, Annual Summary Report. Each laboratory's data for the 12 plant samples (including ASP 43), 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 laboratory code number was included.

2.6   ASPAC upgraded criteria for certification of laboratories for plant tests

Subject to satisfactory measurement performance typically for 12 samples across three sequential "rounds", across a twelve-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 applies when a laboratory incurs no more than <u>four</u> demerit points for the 12 samples, or in this case, all samples except ASP 43.

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 ASPAC's LPC through its

Convenor. When the explanation was accepted, performance from the three most recently completed "rounds" was used to assess eligibility for certification.

When less than six 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.

Importantly, ASPAC's *Certificates of Proficiency* are only issued on completion of each annual program of three "rounds". Moreover, the certifications obtained in the 2005-06 Plants' Program remain valid until completion of the corresponding 2006-07 Program. Nowadays, ASPAC provides details of certified laboratories by test on its public web site.

3. Summary Statistics

This section (continued overleaf) provides summary information and data on a test-by-test basis (alphabetical) for each of the 12 samples used across three "rounds" in 2005-06. The tabulations include values relevant to the iterative "median / MAD" procedure plus other robust statistics. The only test unable to be fully assessed because of low numbers was total Si. For the meaning or derivation of the terms used in the tabulated summaries, see Table 3 and in Appendix 3. All data are expressed on a dry weight basis.

2005-06: Total Aluminum (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	19	19	19	19	18	18	18	18	19	19	19	18
Minimum i	4.82	217	63	272	180	139	56.2	64.8	17.1	44.5	26.5	909
Maximum i	44.8	662	264	1327	464	219	144	193	77.4	117	56.4	1300
Median i	12.5	510	175	953	317	180	74.7	137	22	75	38	1068
Mean i	17.2	509	179	952	314	180	81.8	137	28.5	79.6	37.8	1080
MAD i	3.6	30	21	107	30	12.5	12.7	10	4	10.7	3.3	44
IQR i	7.41	45.2	32.6	131	57.6	21.1	16.9	16.1	7.56	19.8	7.26	67.8
Robust CV% i	59	8.9	19	14	18	12	23	12	34	26	19	6.4
Median f	11.9	507	175	990	317	180	73.6	137.5	21.6	75	38	1066
Mean f	12.8	509	181	997	313	180	78.1	138	22.3	79.6	36.7	1070
MAD f	2.9	27	21	68.5	28	12.5	13.4	9.5	3.5	10.7	3.15	38
IQR f	4.83	39.3	30	98	52.1	21.1	16.3	14.3	6.3	19.8	6.78	63.4
Robust CV% f	41	7.7	17	9.9	16	12	22	10	29	26	18	5.9
Outliers	3	3	2	1	2	0	1	2	3	0	1	1
Stragglers	0	0	0	2	0	0	0	0	0	0	0	0

2005-06: Total Boron (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	28	28	26	26	26	26	24	24	24	24
Minimum i	0.85	26.2	37.1	15.1	12.9	4.53	7.29	3.1	0.001	10.6	5.1	3.27
Maximum i	19.1	73.3	113	42.7	43.5	30.8	194	72.2	21.1	25.3	31.4	32.4
Median i	2.56	62.4	94.0	23.8	21.2	9.30	41	7.02	3.44	19.0	7.09	18.6
Mean i	4.33	60.9	91.5	24.1	22.7	11.1	46.6	12.9	5.39	19.1	9.17	19.4
MAD i	0.98	4.2	6.55	1.95	1.2	1.02	2.55	1.14	0.88	1.3	1.09	1.8
IQR i	2.17	6.36	8.38	2.91	2.31	1.72	3.8	4.8	2.26	2.34	1.55	3.15
Robust CV% i	85	10	8.9	12	11	19	9.3	68	66	12	22	17
Median f	2.34	62.9	95.6	23.7	20.9	9.20	41	6.7	3.2	19.0	6.96	18.5
Mean f	2.39	63.2	97.3	23.4	20.7	9.2	40.2	6.71	3.11	19.2	6.9	19
MAD f	0.73	3.8	4.4	1.9	0.9	0.82	2	0.74	0.58	1.2	0.86	1.5
IQR f	1.09	5.95	6.17	2.41	1.33	1.23	3.43	1.13	0.81	2.11	1.37	2.89
Robust CV% f	47	9.5	6.5	10	6.4	13	8.4	17	25	11	20	16
Outliers	6	2	2	3	6	5	4	7	5	2	4	3
Stragglers	0	0	2	0	1	1	0	1	2	0	0	0

2005-06: Total Cadmium (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				*February 2006 (Round 205)*				*April 2006 (Round 505)*			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	11	12	12	12	11	10	11	11	11	11	11	11
Minimum i	0.002	0.139	0.006	0.014	0.298	0.007	0.068	0.055	0.018	0.023	0.024	0.008
Maximum i	0.038	0.253	0.117	0.119	284	17.1	191	64.8	0.134	0.276	0.333	0.027
Median i	0.008	0.155	0.025	0.034	0.365	0.022	0.275	0.073	0.095	0.193	0.086	0.010
Mean i	0.014	0.166	0.038	0.045	26.1	1.760	17.6	5.99	0.083	0.169	0.102	0.015
MAD i	0.004	0.005	0.0092	0.004	0.057	0.0126	0.042	0.012	0.0158	0.042	0.016	0.0018
IQR i	0.0148	0.013	0.0297	0.0096	0.105	0.114	0.0697	0.0719	0.04	0.0667	0.0245	0.0107
Robust CV% i	190	8.4	120	29	29	530	25	99	42	35	28	110
Median f	0.006	0.154	0.021	0.033	0.363	0.011	0.275	0.064	0.097	0.193	0.085	0.010
Mean f	0.007	0.154	0.020	0.032	0.383	0.011	0.286	0.068	0.097	0.169	0.079	0.010
MAD f	0.002	0.0045	0.0045	0.0015	0.046	0.002	0.028	0.007	0.007	0.042	0.0135	0.0002
IQR f	0.0039	0.0072	0.0081	0.0028	0.0851	0.0038	0.0597	0.0082	0.0203	0.0667	0.0267	0.0009
Robust CV% f	71	4.7	39	8.6	23	34	22	13	21	35	31	8.9
Outliers	2	2	2	3	1	3	2	3	1	0	1	3
Stragglers	1	0	2	1	0	2	0	1	1	0	0	1

2005-06: Total Calcium (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				*February 2006 (Round 205)*				*April 2006 (Round 505)*			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	29	29	29	29	29	29	29	29
Minimum i	0.063	1.9	3.82	0.665	1.2	0.015	0.268	0.231	0.067	1.21	0.108	0.232
Maximum i	0.149	10.4	9.63	1.475	94.6	9.72	152	29.4	0.17	1.5	0.27	0.52
Median i	0.075	6.69	4.65	0.816	1.36	0.12	1.83	0.32	0.155	1.37	0.23	0.4
Mean i	0.079	6.72	4.85	0.855	4.57	0.444	6.98	1.37	0.151	1.38	0.227	0.399
MAD i	0.005	0.4	0.21	0.029	0.04	0.008	0.08	0.013	0.005	0.05	0.015	0.017
IQR i	0.0084	0.741	0.403	0.0478	0.0704	0.013	0.119	0.0385	0.0089	0.0715	0.0196	0.0241
Robust CV% i	11	11	8.7	5.9	5.2	11	6.5	12	5.7	5.2	8.5	6
Median f	0.075	6.69	4.65	0.8075	1.355	0.12	1.805	0.318	0.155	1.37	0.2305	0.4
Mean f	0.0755	6.78	4.65	0.812	1.35	0.119	1.81	0.318	0.154	1.38	0.231	0.401
MAD f	0.005	0.36	0.16	0.0245	0.04	0.0075	0.06	0.009	0.005	0.05	0.0135	0.015
IQR f	0.0074	0.615	0.233	0.0374	0.063	0.0111	0.0982	0.0137	0.008	0.0715	0.0191	0.02
Robust CV% f	9.9	9.2	5	4.6	4.7	9.3	5.4	4.3	5.1	5.2	8.3	5
Outliers	2	4	2	5	3	3	4	6	1	0	1	2
Stragglers	0	0	2	0	0	0	1	2	0	0	0	0

2005-06: Total Carbon (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	13	13	13	13	15	15	15	15	15	15	15	15
Minimum i	41.9	32.6	40.6	41	39	39.9	37.7	37.8	42	42.2	41.8	33
Maximum i	51.5	39.4	45.4	48.8	86.8	93.4	91.3	98.8	97.5	92.5	95.9	95.2
Median i	45.4	35.4	43.4	43.8	41.2	43.2	40.5	49.8	45	44.7	44.6	48.2
Mean i	45.5	35.4	43	43.9	44.9	47.3	45.1	52.7	48.6	47.9	48.3	50.2
MAD i	0.6	0.6	0.6	0.9	1.5	1.5	2	1.5	1.2	1.3	1.6	2.15
IQR i	1.56	1.78	1.11	1.98	2.22	2.67	4.6	2.59	1.99	2.21	2.51	3.26
Robust CV% 1	3.4	5	2.6	4.5	5.4	6.2	11	5.2	4.4	4.9	5.6	6.8
Median f	45.4	35.4	43.5	43.7	41.1	43.1	40.2	49.65	45	44.3	44.5	48.2
Mean f	45.5	35.5	43.4	43.1	41.2	43.2	40.5	49.7	44.6	44.3	44.4	48.1
MAD f	0.3	0.25	0.2	0.9	0.9	1.4	1.3	1.25	0.8	0.7	1.48	1.25
IQR f	0.52	0.59	0.48	1.82	1.93	2.45	2.04	1.91	1.72	1.41	1.96	2.37
Robust CV% f	1.1	1.7	1.1	4.2	4.7	5.7	5.1	3.8	3.8	3.2	4.4	4.9
Outliers	4	3	2	2	2	2	2	3	2	1	1	2
Stragglers	1	2	2	0	0	0	1	0	0	1	1	0

2005-06: Total Chloride (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	20	20	20	20	21	21	21	20	19	19	19	19
Minimum i	0.02	0.587	0.05	0.26	0.99	0.19	0.035	0.013	0.052	0.101	0.038	0.044
Maximum i	0.238	2.93	0.225	0.543	1.49	0.371	0.724	0.409	0.505	0.534	0.302	0.795
Median i	0.058	2.33	0.081	0.40	1.20	0.306	0.422	0.028	0.438	0.416	0.26	0.104
Mean i	0.071	2.2	0.110	0.39	1.21	0.304	0.414	0.053	0.418	0.408	0.253	0.169
MAD i	0.004	0.155	0.0145	0.0205	0.06	0.018	0.024	0.0115	0.012	0.024	0.013	0.011
IQR i	0.008	0.254	0.065	0.0374	0.0927	0.0252	0.0378	0.024	0.0178	0.0408	0.0178	0.04
Robust CV% i	13	11	81	9.4	7.7	8.2	9	87	4.1	9.8	6.8	38
Median f	0.057	2.38	0.076	0.40	1.20	0.308	0.422	0.020	0.438	0.418	0.263	0.10
Mean f	0.056	2.33	0.076	0.397	1.20	0.314	0.427	0.026	0.439	0.426	0.265	0.101
MAD f	0.0032	0.16	0.003	0.0175	0.055	0.016	0.017	0.005	0.009	0.0215	0.011	0.005
IQR f	0.0053	0.228	0.0052	0.0278	0.0871	0.0215	0.0263	0.0134	0.015	0.0343	0.0185	0.0082
Robust CV% f	9.3	9.6	6.8	6.9	7.3	7	6.2	67	3.4	8.2	7.1	8.2
Outliers	6	2	5	3	1	2	2	2	4	3	1	5
Stragglers	0	0	4	1	0	0	2	2	1	0	0	1

2005-06: Total Cobalt (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	14	14	14	14	13	13	13	13	14	14	14	14
Minimum i	0	0.034	0.091	0.085	0.1	0.001	0.032	0.037	0.036	0.04	0.001	0.046
Maximum i	0.192	0.988	0.614	0.634	362	194	682	74.3	1.07	2.74	1.3	0.338
Median i	0.041	0.098	0.184	0.235	0.325	0.141	0.353	0.060	0.055	0.297	0.0485	0.11
Mean i	0.050	0.165	0.213	0.242	28.1	15.3	52.7	5.81	0.133	0.443	0.143	0.126
MAD i	0.0174	0.0315	0.04	0.0335	0.024	0.029	0.083	0.006	0.008	0.0335	0.0195	0.023
IQR i	0.0274	0.0466	0.0537	0.0804	0.0363	0.153	0.191	0.0208	0.0185	0.0423	0.0439	0.0423
Robust CV% i	66	48	29	34	11	110	54	35	34	14	91	38
Median f	0.040	0.092	0.178	0.235	0.325	0.128	0.333	0.060	0.052	0.297	0.048	0.11
Mean f	0.039	0.092	0.183	0.222	0.325	0.130	0.304	0.061	0.051	0.286	0.0536	0.11
MAD f	0.016	0.0255	0.045	0.024	0.023	0.013	0.0765	0	0.003	0.022	0.018	0.023
IQR f	0.0245	0.0441	0.0582	0.0641	0.0356	0.0245	0.2	0.0022	0.0063	0.0382	0.0315	0.0357
Robust CV% f	61	48	33	27	11	19	60	3.7	12	13	66	32
Outliers	1	1	1	1	2	4	1	3	3	2	1	1
Stragglers	0	1	0	1	0	0	0	3	2	0	0	0

2005-06: Total Copper (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	28	28	28	28	28	28	28	28
Minimum i	1.9	0.21	14.4	3.44	19.4	1.51	1.36	0.26	0.001	5.42	1.78	7.5
Maximum i	7.02	5.73	28.5	10.0	41.3	9.56	21.2	14.7	9.79	23.1	9.43	17.4
Median i	4.45	1.34	24.2	5.00	32.4	5.51	17.2	1.62	1.89	9.06	4.835	11.5
Mean i	4.51	1.78	24.0	5.38	32.0	5.48	16.6	2.46	2.23	9.60	4.98	11.5
MAD i	0.34	0.383	2.1	0.43	2.7	0.63	1.14	0.355	0.17	0.68	0.335	0.7
IQR i	0.5	0.656	3.04	0.702	4.11	0.927	2.09	0.587	0.321	1.05	0.63	1.11
Robust CV% i	11	49	13	14	13	17	12	36	17	12	13	9.7
Median f	4.45	1.28	24.3	4.88	32.4	5.51	17.3	1.59	1.87	9.02	4.84	11.7
Mean f	4.52	1.39	24.3	4.86	32.5	5.40	17.4	1.53	1.90	9.04	4.91	11.6
MAD f	0.23	0.3	2.05	0.345	2.6	0.55	0.8	0.32	0.105	0.555	0.28	0.635
IQR f	0.393	0.589	2.89	0.547	4	0.839	1.17	0.469	0.148	0.865	0.454	0.982
Robust CV% f	8.8	46	12	11	12	15	6.8	30	7.9	9.6	9.4	8.4
Outliers	5	4	1	4	1	3	2	3	6	3	3	4
Stragglers	1	0	0	1	0	1	2	1	2	1	1	0

2005-06: Total Iron (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	28	28	26	26	26	26	27	27	26	27
Minimum i	23.3	140	113	112	248	60.4	38.6	30	26.4	96.4	50	86.2
Maximum i	75.7	838	322	478	905	290	254	188	98	301	348	210
Median i	45.9	601	192	364	363	99.0	75.2	45.0	41.0	141	89.2	171
Mean i	46.9	591	198	355	380	103	83.6	56.3	45.3	147	105	167
MAD i	6.38	68.8	16.5	42.5	33.7	8.5	5.4	3.75	3.9	13	12.8	10.5
IQR i	9.04	109	32.2	71.7	53.2	15.2	11.5	5.69	6.38	23	22.4	19.3
Robust CV% i	20	18	17	20	15	15	15	13	16	16	25	11
Median f	45.9	622	191	367	353	99.0	74.0	44.4	40.0	140	89.0	171
Mean f	46.7	636	194	370	349	98.5	73.3	44.5	40.8	139	87.6	171
MAD f	5.15	64	12	35.3	36	8	3.2	3.4	2.2	13	11	10
IQR f	8.13	99.7	18.2	66	53.2	11.2	7.09	4.74	4.6	20.8	17.8	14.5
Robust CV% f	18	16	9.5	18	15	11	9.6	11	11	15	20	8.5
Outliers	1	3	3	1	2	3	4	5	4	2	3	1
Stragglers	1	0	4	1	0	0	1	0	2	0	0	1

2005-06: Total Lead (mg Pb/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	10	10	10	10	11	9	10	10	11	12	12	11
Minimum i	0.015	0.027	0	0.14	2.88	0.14	0.158	0.149	0	0.167	0.191	0.009
Maximum i	0.381	0.673	0.601	0.807	3310	619	684	821	0.44	7.6	16	0.855
Median i	0.098	0.210	0.171	0.543	3.44	0.297	0.335	0.222	0.070	2.18	5.17	0.150
Mean i	0.144	0.271	0.206	0.536	304	69.5	68.8	82.4	0.119	2.40	5.75	0.243
MAD i	0.0615	0.057	0.0485	0.133	0.29	0.157	0.09	0.0435	0.07	0.432	1.51	0.092
IQR i	0.112	0.144	0.104	0.232	0.415	1.64	0.348	0.246	0.153	0.519	2.2	0.239
Robust CV% i	110	69	61	43	12	550	100	110	220	24	43	160
Median f	0.098	0.188	0.161	0.543	3.30	0.155	0.310	0.214	0.062	2.18	4.75	0.143
Mean f	0.144	0.185	0.163	0.536	3.31	0.187	0.336	0.202	0.087	2.10	4.81	0.131
MAD f	0.0615	0.0375	0.037	0.133	0.26	0.015	0.0625	0.009	0.061	0.352	1.19	0.058
IQR f	0.112	0.0752	0.0671	0.232	0.374	0.0793	0.117	0.0511	0.121	0.444	2.24	0.0967
Robust CV% f	110	40	42	43	11	51	38	24	200	20	47	68
Outliers	0	2	1	0	2	3	2	2	1	1	1	2
Stragglers	0	0	0	0	0	1	0	1	0	1	0	0

2005-06: Total Magnesium (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	29	29	29	29	29	29	29	29
Minimum i	0.1	0.468	0.289	0.546	0.355	0.063	0.050	0.062	0.061	0.232	0.21	0.157
Maximum i	0.159	0.96	0.66	0.821	32.7	9.01	60.5	6.21	0.118	0.332	0.331	0.238
Median i	0.130	0.670	0.364	0.673	0.431	0.104	0.710	0.069	0.097	0.275	0.282	0.197
Mean i	0.129	0.672	0.371	0.675	1.54	0.408	2.75	0.298	0.096	0.276	0.276	0.197
MAD i	0.008	0.025	0.015	0.029	0.02	0.005	0.027	0.003	0.005	0.014	0.011	0.01
IQR i	0.0115	0.0408	0.0222	0.0445	0.0297	0.0082	0.0408	0.0052	0.0082	0.0237	0.0241	0.0152
Robust CV% i	8.8	6.1	6.1	6.6	6.9	7.8	5.7	7.5	8.4	8.6	8.5	7.7
Median f	0.130	0.670	0.362	0.673	0.431	0.104	0.715	0.069	0.097	0.275	0.284	0.197
Mean f	0.129	0.670	0.360	0.675	0.427	0.104	0.718	0.069	0.097	0.274	0.281	0.195
MAD f	0.008	0.013	0.012	0.028	0.0195	0.004	0.024	0.003	0.005	0.014	0.008	0.008
IQR f	0.0115	0.0204	0.0165	0.043	0.0271	0.0066	0.0371	0.0038	0.0082	0.0219	0.0174	0.0124
Robust CV% f	8.8	3	4.6	6.4	6.3	6.3	5.2	5.5	8.4	8	6.1	6.3
Outliers	0	3	5	2	1	3	3	2	2	1	3	2
Stragglers	0	5	0	0	0	1	0	0	0	0	2	1

2005-06: Total Manganese (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	28	28	28	28	28	28	28	27
Minimum i	27.6	27	34	110	126	28	1.22	51.7	73.4	27.8	29.5	986
Maximum i	54.7	47.1	1153	184	337	81.5	292	123	90.3	39.4	39.4	1830
Median i	48.0	34.3	45.6	145	172	36.8	150	62.3	82.9	32.8	34.2	1301
Mean i	46.5	34.9	83.7	145	175	37.6	146	66.0	82.5	33.2	34.2	1350
MAD i	3.7	2	2.8	7	6.7	2.25	6.53	2.85	4.25	1.8	1.4	91
IQR i	4.53	3.52	4.19	10.6	9.91	4.03	7.97	3.65	6.58	3.06	2.28	141
Robust CV% i	9.4	10	9.2	7.3	5.8	11	5.3	5.9	7.9	9.3	6.7	11
Median f	48.0	33.2	45.3	145	173	35.9	150	62.2	82.9	32.8	34.2	1301
Mean f	47.2	33.7	45.3	145	173	35.6	149	61.6	82.5	33.2	34.2	1330
MAD f	3.55	1.6	2.75	7	5.65	2.32	5.78	1.93	4.25	1.8	1.4	60
IQR f	4.87	2.71	4.13	9.64	7.97	3.69	7.69	3.08	6.58	3.06	2.28	127
Robust CV% f	10	8.1	9.1	6.6	4.6	10	5.1	4.9	7.9	9.3	6.7	9.8
Outliers	1	3	3	2	3	2	3	2	0	0	0	2
Stragglers	0	1	0	0	1	0	0	2	0	0	0	1

13

2005-06: Total Molybdenum (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	15	16	15	15	14	13	14	14	15	16	15	15
Minimum i	0.378	5.66	0.027	0.024	0.444	0.237	0.107	0.018	0.195	0.361	0.161	0
Maximum i	0.946	8.75	1.31	0.75	3.58	1.63	3.18	1.34	2.96	2.52	1.87	2.38
Median i	0.699	6.28	0.250	0.328	0.772	0.420	0.210	0.061	0.35	0.955	0.344	0.149
Mean i	0.696	6.66	0.365	0.342	1.05	0.544	0.450	0.186	0.506	1.04	0.473	0.318
MAD i	0.174	0.525	0.111	0.063	0.059	0.125	0.0255	0.0395	0.101	0.0755	0.061	0.077
IQR i	0.289	1.07	0.156	0.099	0.164	0.199	0.075	0.131	0.153	0.163	0.094	0.134
Robust CV% i	41	17	63	30	21	47	36	220	44	17	27	90
Median f	0.699	6.14	0.221	0.328	0.758	0.406	0.198	0.046	0.339	0.955	0.344	0.120
Mean f	0.696	6.23	0.261	0.303	0.754	0.405	0.205	0.058	0.331	0.947	0.346	0.142
MAD f	0.174	0.39	0.109	0.0215	0.0285	0.092	0.012	0.0165	0.0955	0.0075	0.028	0.048
IQR f	0.289	0.619	0.146	0.068	0.0493	0.15	0.02	0.037	0.126	0.017	0.061	0.102
Robust CV% f	41	10	66	21	6.5	37	10	81	37	1.7	18	85
Outliers	0	2	2	2	4	1	3	2	1	4	2	2
Stragglers	0	1	0	3	0	1	2	2	0	4	1	0

2005-06: Total Nitrogen (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	28	28	27	27	27	27	28	28	28	28
Minimum i	1.7	1.33	2.31	2.16	2.31	0.987	0.196	0.02	0.001	0.037	0.063	0.005
Maximum i	2.89	1.83	3.48	3.89	3.01	1.77	0.957	0.817	1.39	3.18	1.72	4.29
Median i	1.92	1.62	2.60	2.59	2.76	1.41	0.824	0.211	1.14	2.84	1.46	3.85
Mean i	1.93	1.60	2.60	2.62	2.71	1.40	0.792	0.246	1.12	2.76	1.41	3.64
MAD i	0.085	0.065	0.09	0.105	0.14	0.07	0.026	0.051	0.045	0.07	0.055	0.11
IQR i	0.137	0.109	0.135	0.163	0.193	0.104	0.066	0.079	0.078	0.124	0.104	0.182
Robust CV% i	7.1	6.8	5.2	6.3	7	7.4	8	38	6.9	4.4	7.1	4.7
Median f	1.91	1.62	2.60	2.59	2.76	1.41	0.824	0.206	1.13	2.84	1.46	3.86
Mean f	1.90	1.61	2.56	2.59	2.71	1.40	0.824	0.217	1.13	2.85	1.47	3.87
MAD f	0.08	0.06	0.08	0.095	0.14	0.06	0.017	0.027	0.04	0.065	0.05	0.1
IQR f	0.126	0.111	0.133	0.148	0.193	0.096	0.027	0.0571	0.059	0.106	0.093	0.145
Robust CV% f	6.6	6.9	5.1	5.7	7	6.8	3.3	28	5.2	3.7	6.3	3.7
Outliers	1	1	1	2	0	2	8	2	4	2	3	3
Stragglers	0	0	0	0	0	0	1	2	1	0	0	0

2005-06: Total Phosphorus (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	29	29	29	29	29	29	29	29
Minimum i	0.285	0.153	0.12	0.195	0.214	0.146	0.0277	0.021	0.103	0.221	0.184	0.255
Maximum i	0.356	0.21	0.18	0.297	0.273	0.21	0.352	0.275	0.18	0.293	0.261	0.388
Median i	0.33	0.17	0.14	0.22	0.23	0.18	0.31	0.03	0.13	0.26	0.23	0.30
Mean i	0.33	0.17	0.14	0.22	0.24	0.18	0.30	0.04	0.13	0.26	0.23	0.30
MAD i	0.012	0.008	0.005	0.009	0.005	0.006	0.009	0.002	0.006	0.011	0.013	0.017
IQR i	0.0167	0.0119	0.0093	0.0107	0.0093	0.0119	0.013	0.0033	0.01	0.0189	0.0196	0.0252
Robust CV% i	5.1	7.1	6.9	4.9	4	6.6	4.2	10	7.8	7.3	8.6	8.4
Median f	0.33	0.17	0.13	0.22	0.23	0.18	0.31	0.03	0.13	0.26	0.23	0.30
Mean f	0.33	0.17	0.13	0.22	0.23	0.18	0.31	0.03	0.13	0.26	0.23	0.30
MAD f	0.012	0.0075	0.006	0.008	0.003	0.006	0.009	0.0017	0.0045	0.011	0.013	0.015
IQR f	0.0167	0.0117	0.0096	0.0107	0.0052	0.0107	0.0104	0.0015	0.0096	0.0189	0.0196	0.0237
Robust CV% f	5.1	6.9	7.2	4.9	2.3	6	3.4	4.6	7.4	7.3	8.6	7.9
Outliers	0	1	2	1	2	3	2	6	2	0	0	1
Stragglers	0	0	0	0	4	0	0	0	1	0	0	1

2005-06: Total Potassium (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	29	29	29	29	28	28	28	28
Minimum i	0.265	1.21	0.682	1.7	1.21	0.527	0.183	0.122	0.778	1.47	0.906	1.37
Maximum i	0.75	2.08	1.49	3.87	197	109	197	20.1	1.21	2.08	1.25	1.84
Median i	0.39	1.61	1.01	2.19	3.71	1.39	2.38	0.22	1.04	1.77	1.11	1.62
Mean i	0.41	1.61	1.02	2.19	10.2	5.07	9.01	1.00	1.03	1.75	1.10	1.61
MAD i	0.024	0.08	0.03	0.11	0.235	0.07	0.1	0.019	0.043	0.072	0.045	0.09
IQR i	0.043	0.122	0.05	0.185	0.363	0.115	0.159	0.044	0.057	0.12	0.069	0.138
Robust CV% i	11	7.6	5	8.5	9.8	8.3	6.7	20	5.5	6.8	6.2	8.5
Median f	0.38	1.62	1.01	2.19	3.72	1.40	2.38	0.22	1.04	1.77	1.11	1.62
Mean f	0.39	1.63	1.01	2.15	3.65	1.42	2.4	0.22	1.04	1.75	1.11	1.61
MAD f	0.018	0.06	0.03	0.11	0.203	0.04	0.095	0.014	0.039	0.065	0.04	0.09
IQR f	0.032	0.096	0.044	0.17	0.272	0.082	0.141	0.022	0.053	0.109	0.052	0.138
Robust CV% f	8.5	5.9	4.3	7.8	7.3	5.8	5.9	9.8	5.1	6.2	4.7	8.5
Outliers	4	3	6	2	3	3	4	7	2	2	1	0
Stragglers	0	1	0	0	0	2	0	1	0	0	0	0

2005-06: Total Selenium (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	11	11	11	11	8	8	8	8	10	10	10	11
Minimum i	0.031	0.052	0	0	0	0	0	0	0.004	0.013	0.015	0.021
Maximum i	0.266	0.9	0.52	0.24	0.17	0.143	0.16	0.07	14.0	6.57	21.1	1.72
Median i	0.100	0.166	0.044	0.046	0.083	0.068	0.078	0.035	0.018	0.153	0.037	0.153
Mean i	0.114	0.252	0.103	0.070	0.090	0.068	0.082	0.039	1.71	0.999	2.38	0.476
MAD i	0.025	0.046	0.025	0.026	0.018	0.012	0.05	0.012	0.013	0.034	0.016	0.048
IQR i	0.0482	0.0823	0.0815	0.0504	0.0608	0.0258	0.0849	0.0287	0.606	0.46	0.506	0.663
Robust CV% i	48	50	190	110	73	38	110	82	3400	300	1400	430
Median f	0.080	0.144	0.029	0.044	0.083	0.068	0.078	0.035	0.008	0.142	0.023	0.112
Mean f	0.088	0.148	0.030	0.053	0.090	0.067	0.082	0.039	0.008	0.135	0.029	0.120
MAD f	0.02	0.026	0.015	0.026	0.018	0.004	0.05	0.012	0.001	0.024	0.007	0.026
IQR f	0.0313	0.0597	0.0294	0.0426	0.0608	0.012	0.0849	0.0287	0.003	0.0434	0.0188	0.0456
Robust CV% f	39	41	100	97	73	18	110	82	38	31	82	41
Outliers	1	2	2	1	0	1	0	0	4	2	3	3
Stragglers	1	0	1	0	0	1	0	0	1	0	0	0

2005-06: Total Silicon (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				February 2006 (Round 205)				April 2006 (Round 505)			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	6	6	6	6	7	7	7	7	7	7	7	7
Minimum i	0.03	0.002	0.02	0.02	0.077	0.021	0.019	0.008	0.028	0.054	0.031	0.005
Maximum i	0.66	0.083	0.231	0.698	1.23	1.62	0.262	0.267	0.447	0.644	0.29	0.116
Median i	0.238	0.026	0.130	0.169	0.389	0.640	0.053	0.042	0.256	0.353	0.208	0.010
Mean i	0.290	0.033	0.123	0.258	0.531	0.827	0.082	0.066	0.256	0.338	0.175	0.028
MAD i	0.195	0.021	0.079	0.138	0.312	0.619	0.032	0.009	0.159	0.185	0.082	0.005
IQR i	0.372	0.0384	0.127	0.353	0.743	1.05	0.0815	0.0271	0.248	0.344	0.171	0.0148
Robust CV% i	160	150	98	210	190	160	150	64	97	97	82	150
Median f	0.238	0.026	0.130	0.169	0.389	0.640	0.038	0.038	0.256	0.353	0.208	0.009
Mean f	0.290	0.033	0.123	0.258	0.531	0.827	0.052	0.032	0.256	0.338	0.175	0.013
MAD f	0.195	0.021	0.079	0.138	0.312	0.619	0.018	0.01	0.159	0.185	0.082	0.003
IQR f	0.372	0.0384	0.127	0.353	0.743	1.05	0.0447	0.0238	0.248	0.344	0.171	0.0145
Robust CV% f	160	150	98	210	190	160	120	64	97	97	82	160
Outliers	0	0	0	0	0	0	1	1	0	0	0	1
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

2005-06: Total Sodium (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				*February 2006 (Round 205)*				*April 2006 (Round 505)*			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	30	30	30	30	29	29	29	29	29	29	28	29
Minimum i	0.004	0.020	0.014	0.002	0.014	0.022	0.018	0.003	0.006	0.015	0	0.012
Maximum i	0.1	0.122	0.124	0.114	1.62	2.6	12	2.02	1.17	0.193	0.123	0.216
Median i	0.007	0.025	0.020	0.006	0.020	0.029	0.126	0.023	0.011	0.019	0.003	0.016
Mean i	0.014	0.036	0.032	0.016	0.078	0.119	0.532	0.096	0.059	0.029	0.010	0.031
MAD i	0.003	0.004	0.002	0.003	0.004	0.002	0.009	0.002	0.002	0.003	0.002	0.002
IQR i	0.0044	0.011	0.0136	0.0061	0.0093	0.0033	0.0137	0.0037	0.0057	0.0076	0.0041	0.0036
Robust CV% i	64	44	66	100	46	12	11	17	52	40	140	22
Median f	0.006	0.024	0.019	0.004	0.019	0.028	0.126	0.021	0.011	0.017	0.002	0.016
Mean f	0.007	0.024	0.019	0.006	0.019	0.028	0.126	0.021	0.011	0.018	0.002	0.016
MAD f	0.002	0.002	0.001	0.001	0.003	0.002	0.009	0.001	0.001	0.001	0.001	0.001
IQR f	0.0034	0.003	0.0022	0.0025	0.005	0.003	0.013	0.0015	0.0018	0.0026	0.0017	0.0017
Robust CV% f	56	12	11	63	26	11	11	7.1	17	15	84	11
Outliers	4	6	8	5	4	4	2	7	6	5	6	6
Stragglers	2	3	3	2	2	0	0	2	3	3	1	1

2005-06: Total Sulfur (%)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				*February 2006 (Round 205)*				*April 2006 (Round 505)*			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	27	27	27	27	26	26	26	26	25	25	25	25
Minimum i	0.1	0.173	0.2	0.1	0.030	0.101	0.021	0.02	0.086	0.182	0.090	0.078
Maximum i	0.298	7.17	0.335	0.293	23.8	10.8	13.1	2.28	0.196	0.312	0.222	0.313
Median i	0.16	1.84	0.27	0.18	0.31	0.13	0.15	0.03	0.11	0.27	0.14	0.25
Mean i	0.16	1.92	0.27	0.18	1.20	0.54	0.65	0.13	0.11	0.26	0.14	0.24
MAD i	0.01	0.1	0.011	0.007	0.015	0.006	0.008	0.002	0.006	0.009	0.007	0.013
IQR i	0.0126	0.185	0.0185	0.0104	0.0235	0.0102	0.0133	0.0045	0.0093	0.017	0.0107	0.0211
Robust CV% i	8.1	10	6.8	5.6	7.7	8.1	9.1	18	8.7	6.4	7.9	8.5
Median f	0.16	1.87	0.27	0.18	0.30	0.13	0.15	0.02	0.11	0.27	0.14	0.25
Mean f	0.15	1.85	0.27	0.18	0.30	0.13	0.15	0.02	0.11	0.27	0.14	0.25
MAD f	0.006	0.067	0.01	0.004	0.012	0.003	0.005	0.001	0.004	0.006	0.005	0.007
IQR f	0.0115	0.105	0.0174	0.0078	0.0187	0.0052	0.0078	0.0015	0.0061	0.0091	0.0082	0.0156
Robust CV% f	7.4	5.6	6.4	4.2	6.2	4.1	5.3	6.2	5.7	3.4	6	6.2
Outliers	4	6	3	3	3	4	4	5	2	5	4	4
Stragglers	1	1	0	2	1	3	1	2	3	2	0	2

2005-06: Total Zinc (mg/kg)

Statistical parameters	Plant sample identification and values											
	November 2005 (Round 105)				*February 2006 (Round 205)*				*April 2006 (Round 505)*			
	ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	29	29	28	28	28	28	28	28	28	28
Minimum i	14.7	7.2	55.1	44.7	30.4	3.06	16.2	17.1	8.14	24.8	17.2	24.7
Maximum i	23	12.7	77.8	62.3	50.9	15.2	86.9	65.5	65.3	35.6	25.7	37
Median i	18.2	9.08	66.5	50.5	44.3	11.5	74.8	20.0	11.8	30.3	20.9	29.3
Mean i	18.4	9.15	66.1	51.0	43.5	11.2	73.9	21.8	13.7	30.3	21.1	29.8
MAD i	1.1	0.63	3.7	2.44	2.75	0.71	4.45	0.7	0.75	1.7	1.5	2
IQR i	1.7	1.16	5.67	3.6	4.37	1.25	6.26	1.73	1.19	2.46	2.28	2.91
Robust CV% i	9.4	13	8.5	7.1	9.9	11	8.4	8.7	10	8.1	11	9.9
Median f	18.2	9.04	66.5	50.3	44.4	11.5	75.4	19.9	11.7	30.3	20.9	29.3
Mean f	18.2	9.02	66.1	50.6	44.0	11.4	76.0	19.8	11.5	30.3	21.1	29.8
MAD f	1.1	0.625	3.7	2.42	2.6	0.6	4	0.4	0.7	1.7	1.5	2
IQR f	1.61	1.18	5.67	3.54	4.37	0.945	6.28	0.606	0.89	2.46	2.28	2.91
Robust CV% f	8.9	13	8.5	7	9.9	8.3	8.3	3	7.6	8.1	11	9.9
Outliers	1	1	0	1	1	4	1	8	5	0	0	0
Stragglers	0	0	0	0	0	0	0	2	0	0	0	0

4.   Comments on Measurement Performance

A detailed evaluation of measurement performance is beyond the scope of this report. Such evaluations are typically made at ASPAC Workshops and in other national and international fora. However, it is appropriate to make a few observations.

Firstly, the data summaries in Section 3 show many examples of skewed data; i.e. there were quite large differences at times between the median and mean values reported by laboratories. This emphasised the importance of using medians and MADs, which are less influenced by 'rogue' results in small data sets.

Secondly, the median robust % CVs across the 12 samples, after the removal of "outliers" and "stragglers", ranged from 4 to 135%. This covered the 20 tests reported by a minimum of six laboratories (Si was included on this criterion, but it was excluded in 2004-05). Table 4 provides the identity of the six best and six worst tests, with their corresponding median robust %CVs. There were some "round-by-round" fluctuations in measurement performance by test, but always total C had lowest robust %CVs and Si the highest. Numbers in brackets in Table 4 show corresponding performances in 2004-05. Generally there was better performance in 2005-06 with %CVs lower for the top six, and better for the majority of tests. Percent robust CVs for Pb and Se were halved and doubled, respectively, compared to 2004-05. Phosphorus dropped out of the top (best) six with a CV% of 6.5 compared to 6.3 in 2004-05, while B and Al were not in the six worst this time with %CVs improving from 16.8 and 29.4 to 12 and 16.5, respectively. It is not surprising that elements determined at ultra-trace levels (Se, Pb, Co, Mo and Cd) were in the worst-six grouping. The extremely high %CVs for Si suggest major issues with the methodologies used by the participating laboratories.

Thirdly, the median robust %CV across the 21 tests on a sample by sample basis ranged from 7.3% (ASP 21) to 11% (ASP 22 and ASP 43), with a grand median for the 12 samples of 9.2%. Based on the similarity of these CVs, no sample was outstandingly more difficult than others to analyse. However sample ASP 43 was later withdrawn for certification purposes, based on the homogeneity testing data.

Table 4. The six best performed and worst performed plant chemical tests in 2005-06, based on median percent robust coefficients of variation after the removal of "outliers" and "stragglers". Numbers in brackets show performance data for 2004-05.

Best (Lowest Robust %CVs)		Worst (Highest Robust %CVs)	
Plant test	*%CV*	*Plant test*	*%CV*
Carbon	4.0 (5.2)	Cadmium	22.5 (18.9)
Calcium	5.2 (8.1)	Molybdenum	29 (29)
Sulfur	5.9 (8.7)	Cobalt	29.5 (40.3)
Nitrogen	6.0 (7.0)	Lead	43 (92.8)
Potassium	6.1 (7.7)	Selenium	57 (29.2)
Magnesium	6.3 (6.2)	Silicon	135 (na)

Appendix 1: Laboratories in ASPAC's Plant ILPP, 2005-06

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Appendix 2: Summary examples of homogeneity data and statistical assessments for total N (Dumas) in plant samples used in ASPAC's Plant ILPP, 2005-06

Sample name		ASP 111	ASP 112	ASP 113	ASP 114	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
Sample 1	Rep 1	1.98	1.66	2.69	2.62	2.94	1.50	0.796	0.201	1.10	3.10	1.60	3.97
	Rep 2	1.94	1.65	2.69	2.74	2.88	1.47	0.846	0.191	1.11	3.06	1.51	3.98
Sample 2	Rep 1	1.99	1.58	2.71	2.67	2.93	1.58	0.818	0.166	1.10	2.96	1.64	4.03
	Rep 2	1.91	1.64	2.71	2.65	2.90	1.55	0.825	0.213	1.12	2.98	1.53	4.02
Sample 3	Rep 1	2.02	1.60	2.63	2.69	2.88	1.54	0.859	0.211	1.13	3.03	1.56	3.98
	Rep 2	1.93	1.60	2.72	2.67	2.84	1.47	0.756	0.172	1.09	3.00	1.70	3.98
Sample 4	Rep 1	1.97	1.59	2.66	2.66	2.83	1.58	0.859	0.212	1.12	3.07	1.40	4.03
	Rep 2	1.93	1.61	2.60	2.62	2.77	1.55	0.880	0.142	1.13	3.00	1.41	4.06
Sample 5	Rep 1	1.95	1.66	2.57	2.68	2.87	1.53	0.848	0.160	1.21	3.03	1.44	3.93
	Rep 2	1.96	1.68	2.72	2.62	2.88	1.47	0.808	0.167	1.10	3.00	1.45	3.97
Sample 6	Rep 1	1.99	1.68	2.66	2.69	2.86	1.52	0.834	0.237	1.10	2.96	1.47	4.02
	Rep 2	1.91	1.69	2.67	2.73	2.83	1.47	0.839	0.170	1.11	3.00	1.47	3.95
Sample 7	Rep 1	1.97	1.62	2.65	2.66	2.88	1.54	0.779	0.158	1.09	2.94	1.42	3.93
	Rep 2	1.93	1.66	2.73	2.73	2.89	1.58	0.857	0.174	1.11	3.06	1.52	4.03
Sample 8	Rep 1	1.92	1.64	2.55	2.70	2.88	1.52	0.810	0.167	1.08	2.99	1.49	4.03
	Rep 2	1.90	1.54	2.65	2.71	2.86	1.44	0.842	0.156	1.08	2.89	1.50	4.00
Sample 9	Rep 1	2.02	1.65	2.65	2.70	2.93	1.57	0.797	0.209	1.13	2.91	1.50	3.97
	Rep 2	1.97	1.64	2.62	2.67	2.86	1.52	0.776	0.204	1.10	3.09	1.53	4.02
Sample 10	Rep 1	1.98	1.61	2.64	2.72	2.97	1.55	0.881	0.211	1.12	2.88	1.40	3.93
	Rep 2	1.87	1.61	2.70	2.76	2.92	1.48	0.847	0.177	1.11	2.93	1.29	4.03
Mean		1.952	1.6305	2.661	2.6845	2.88	1.5215	0.8279	0.1849	1.112	2.994	1.4915	3.993
Analytical SD		0.0452	0.0285	0.0525	0.0384	0.0305	0.0381	0.0346	0.0272	0.0281	0.059	0.0562	0.0394
Sampling SD		0.0217	0.026	0.0164	0.0126	0.0343	0.0206	0.0022	0.0096	0.0052	0.0258	0.0748	0.0013
SD of proficiency data		0.119	0.089	0.119	0.141	0.208	0.089	0.025	0.040	0.052	0.101	0.067	0.148
Homogeneity index		0.182	0.2926	0.1381	0.0896	0.1647	0.231	0.0884	0.2397	0.1003	0.2552	1.1164	0.0087
Status**		H	H	H	H	H	H	H	H	H	H	N/H***	H
F-statistic		0.5403	2.6646	0.8043	1.2162	3.5245	1.5811	1.0082	0.752	0.9311	1.3819	4.5468	0.9978
F critical		3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
F<F crtiical		Y	Y	Y	Y	N*	Y	Y	Y	Y	Y	N**	Y

* For sample ASP 21, there were statistically significant differences between samples - but not at a level where proficiency assessments were unduly influenced

** H = homogeneous; NH = not-homogeneous

*** Sample ASP 43 was found to be not sufficiently homogenous and all assessments made on this sample were withdrawn

Appendix 3: Statistical procedures used by ASPAC for its upgraded 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 6 or greater) laboratories. See references in the body of the report for more details. The median is regarded as a good estimate of the true mean (μ), while the MAD; ie. 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 2.5% (two-tailed) with n-1 degrees of freedom. Excluding any case when a laboratory reported no result (or a non-numeric value), 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 was subject to a second iteration involving a recalculation of the "ASPAC score". Where this was again >2, the relevant laboratories were rated as "stragglers" (†).

Further iterations can be undertaken if the sample is targeted for upgrading to the status of a reference, only to converge the mean and the median, thereby providing a more likely "correct" reference result.

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

Appendix 4: "Raw" program data for the 12 samples across three "rounds"

These tabulations list, in alphabetical order, the "raw" data provided by participating laboratories for each method, with unnecessary precision removed after completion of statistical tests only to assist data presentation. Statistical "outliers" and "stragglers" are indicated by †† and †, respectively. All results are on an oven dry basis.

Lab Code #	Reported data for plant Aluminum (mg/kg)																							
	November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
	ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
	11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L006	44.8	††	541		212		530	†																
L009	23.6		476		156		953		326		189		66.7		135		31.4		92.7		48.6		1028	
L011	43.5	††	534		200		1060		338		183		87.1		151		28		66.6		41.3		1090	
L013	10		451		160		942		269		160		69.3		124		18		74		37		1014	
L016	10.6		518		144		923		264		173		60.4		136		17.1		64.5		26.8		1070	
L019	18.02		480		166		1030		268		159		92.3		147		27		66		38		1066	
L022	12.2		498		175		1045		324		178		65		143		18.2		69		40		1102	
L023	12.7		496		177		814		310		180		71		130		26		75		46		1040	
L026	4.82		662	††	262		946		365		208		113		154		28.6		104		39.1		1077	
L028	20		535		196		1050		346		170		88		139		22		85		35		1060	
L030	7.52		510		154		1060		358		192		87.6		128		19.6		93.3		38		1190	
L032	8.75		477		197		1230		305		163		110		64.8	††	77.4	††	71.6		31.5		989	
L034	15.5		487		146		754		250		164		56.2		117		18.4		61.6		27.9		1190	
L036	12.5		504		170		1073		302		193		73.6		132		20		78		39		1119	
L040	11.2		556		178		950		340		187		75.8		142		17.8		62.4		30.2		1063	
L044	33.8	††	564		264	††	883		290		180		144	††	193	††	50.5	††	117		56.4	††	1020	
L046																	22.2		85.7		38.6			
L079	16.1		656	††	221		1327	†									57	††	90.1		35.8		1300	††
L097	11.6		511		161		1250		464	††	219		68.6		148		22		112		42.2		1117	
L133	9.25		217	††	63	††	272	††	180	††	139		56.8		119		21.2		44.5		26.5		909	
L280									348		202		87		157									

25

Lab Code #	Reported data for plant Boron (mg/kg)											
	November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
	ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L005	19.1 ††	36.6 ††	46.2 ††	26.1	26.1 ††	24.6 ††	194 ††	72.2 ††	7.04 ††	19.6	6.39	21.5
L006	11.8 ††	65.8	100	19.5								
L009	2.44	57.5	91.9	20.7	18.8	8.36	37.5	5.91	3.47	20.5	15.7 ††	32.4 ††
L011	3.06	61.2	91.2	20.7	12.9 ††	4.53 ††	33.3	3.1 †	17.7 ††	22.8	21.3 ††	23.5
L013	2.3	59.7	94.3	23.7	18.3	8.4	38.3	6.07	1.2	16.5	5.1	15.3
L015	0.954	49	71.4 †	21.8	21.2	7.05	39	7.4	4.09	19.5	8.28	18
L016	2	67.1	104	24.8	20.4	9.3	41	6.41	2.62	19	6.18	18.5
L018	2.5	73.3	110	25.6	21.2	9.29	44.2	6.49	2.8	17.6	6.3	17.9
L019	4.77	62.2	93.1	23.9	25.4 †	9.83	39.2	7.53	6 †	22.4	8.8	17.3
L022	2.63	64.2	101	23.1	20.5	9.3	40.8	6.9	3.4	19.5	7.3	18.9
L023	1.56	60.6	94	21.7	20	8.7	41	5.8	2.5	23	7	17
L026	2.2	62.5	93.6	24.8	22.4	10.1	41	7.51	3.6	19.2	5.75	20.9
L028	10.3 ††	71.1	106	22.5	19.4	11.8	38.6	4.9	3.2	18.4	5.9	17.4
L030	2.01	63.3	99.2	23.4	20.7	8.98	41.6	5.9	2.6	17.7	5.83	16.8
L032	3.74	58.7	93.6	24.8	22.1	10.9	7.29 ††	38 ††	2.43	17.8	7.59	19
L034	3.26	63.6	97.7	24.7	18.2	8.33	37.5	5.74	4.64	18.6	8.09	22
L036	2.37	67.6	101	25.7	21.8	9.07	41.6	6.6				
L040	1.7	67.9	113	24.3	21.5	10.6	42.7	8.56	3.37	18.7	6.73	18.6
L044	8.45 ††	26.2 ††	37.1 ††	15.1 ††	34.7 ††	30.8 ††	71 ††	43.7 ††	21.1 ††	25.3 ††	31.4 ††	31.3 ††
L046	3.08	65.7	93.4	24.5								
L064	1.22	59.5	70.8 †	26.5	21.8	5.96 †	36	15.3 ††	3.68	18.9	8.31	21.2
L079	0.9	54.3	111	21.4								
L080	7.16 ††	72.9	102	42.7 ††	26.3 ††	10.4	36	12.3 ††	0.001 †	10.6 ††	7.18	3.27 ††
L084	4.5	68.3	81	18.2	43.5 ††	20.7 ††	43.9	13.2 ††	10.9 ††	16.3	7.9	16.7
L097	1.6	61.4	89.4	21.4	22.4	9.35	44.3	8.18	2.11	15.7	5.41	17.1
L100	2.83	60.5	93.9	23.4	20.0	7.14	41.1	7.05	3.15	18.8	6.92	18.2
L133	12 ††	57	85	32 ††	29.2 ††	18.6 ††	54.3 ††	16.2 ††	13.7 ††	21.5	13.7 ††	23
L139	0.85	68	97	28	21	8	43	7	4	21	7	21
L280					20.9	9.1	42.8	6.8				

26

| Lab Code # | Method Code | Reported data for plant Cadmium (mg/kg) | | | | | | | | | | | |
| | | November 2005 (Round 105) | | | | February 2006 (Round 305) | | | | April 2006 (Round 505) | | | |
		ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L006	Pooled	0.025 †	0.154	0.117 ††	0.119 ††								
L009	Pooled	0.038 ††	0.148	0.073 ††	0.104 ††	0.537	0.197 ††	0.341	0.16 ††	0.024 †	0.026	0.024	0.024 ††
L011	Pooled	0.01	0.15	0.028	0.032	0.298	0.043 †	0.232	0.062	0.095	0.189	0.086	0.012
L016	Pooled	0.006	0.155	0.018	0.033	0.365	0.011	0.286	0.071	0.104	0.235	0.097	0.008
L019	Pooled	0.013	0.253 ††	0.062 †	0.045 †	0.425	0.013	0.275	0.063	0.05	0.14	0.07	0.01
L023	Pooled		0.16	0.021	0.031	0.36		0.25	0.064				
L028	Pooled	0.005	0.17	0.02	0.03								
L030	Pooled					0.358	0.007	0.27	0.055	0.091	0.193	0.084	0.01
L032	Pooled	0.002	0.139	0.014	0.025	0.325	0.011	0.068 ††	0.29 ††	0.097	0.196	0.094	0.010
L036	Pooled	0.008	0.159	0.026	0.038	0.308	0.028 †	0.247	0.085	0.134	0.23	0.333 ††	0.027 ††
L040	Pooled	0.004	0.15	0.006	0.014 ††	0.382	0.015	0.354	0.073	0.098	0.209	0.103	0.009
L044	Pooled	0.037 ††	0.154	0.048 †	0.034	0.467	0.154 ††	0.317	0.102 †	0.018 ††	0.023	0.04	0.01
L079	Pooled	0.005	0.202 ††	0.024	0.034					0.121	0.276	0.107	0.025 ††
L133	Pooled					284 ††	17.1 ††	191 ††	64.8 ††	0.079	0.146	0.084	0.018 †

Lab Code #	Method Code	Reported data for plant Calcium (%w/w)											
		November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP 11.1	ASP 11.2	ASP 11.3	ASP 11.4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L005	Pooled	0.09	1.9 ††	4.12	0.85	1.36	0.13	2.11 †	0.4 ††	0.16	1.49	0.23	0.44
L006	Pooled	0.077	7.26	4.76	0.787								
L009	Pooled	0.063	6.26	4.05	0.756	1.34	0.144	1.72	0.37 †	0.163	1.21	0.205	0.357
L010	Pooled	0.0817	6.19	3.82 ††	0.766	1.39	0.113	1.83	0.309	0.155	1.45	0.233	0.451
L011	Pooled	0.083	7.09	5.14	0.817	1.36	0.122	1.81	0.314	0.17	1.36	0.245	0.421
L013	Pooled	0.07	7.42	5.42 †	0.84	1.27	0.12	1.75	0.34	0.157	1.463	0.249	0.434
L015	Pooled	0.079	7.38	5.15	0.889	1.39	0.133	1.88	0.357	0.163	1.398	0.257	0.426
L016	Pooled	0.077	6.19	4.43	0.809	1.25	0.119	1.66	0.319	0.152	1.32	0.231	0.395
L018	Pooled	0.078	6.97	4.74	0.881	1.35	0.124	1.84	0.318	0.155	1.45	0.25	0.417
L019	Pooled	0.078	6.481	4.537	0.766	1.3	0.096	1.74	0.288	0.149	1.369	0.222	0.4
L022	Pooled	0.075	6.69	4.65	0.8	1.31	0.116	1.69	0.315	0.15	1.37	0.22	0.41
L023	Pooled	0.072	6.75	4.87	0.841	1.5	0.12	2	0.32	0.15	1.5	0.22	0.4
L026	Pooled	0.0637	6.54	4.49	0.806	1.41	0.12	1.86	0.327	0.146	1.35	0.227	0.391
L028	Pooled	0.069	6.66	4.72	0.781	1.28	0.098	1.79	0.321	0.144	1.35	0.218	0.392
L030	Pooled	0.074	6.78	4.65	0.823	1.2 ††	0.11	1.64	0.28	0.162	1.43	0.233	0.437
L032	Pooled	0.0712	6.29	4.76	0.792	1.25	0.108	0.268 ††	1.61 ††	0.145	1.37	0.237	0.393
L034	Pooled	0.089	6.36	4.61	0.834	1.3	0.126	1.76	0.328	0.163	1.32	0.247	0.409
L036	Pooled	0.071	6.99	4.65	0.801	1.36	0.121	1.8	0.306	0.15	1.337	0.245	0.406
L040	Pooled	0.068	7.36	5.12	0.665 ††	1.4	0.12	1.9	0.34	0.15	1.4	0.233	0.4
L042	Pooled	0.088	7.92	5.43 †	0.974 ††	1.34	0.113	1.8	0.309	0.16	1.36	0.22	0.39
L044	Pooled	0.0743	6.2	4.49	0.791	1.32	0.119	1.88	0.369 †	0.157	1.28	0.23	0.394
L046	Pooled					94.6 ††	9.72 ††	152 ††	29.4 ††	0.147	1.28	0.213	0.353
L064	Pooled	0.149 ††	10.4 ††	9.63 ††	1.16 ††	1.48	0.053 ††	2.25 ††	0.231 ††	0.153	1.44	0.204	0.383
L079	Pooled	0.066	7.36	5.25	1.04 ††					0.147	1.24	0.209	0.361
L080	Pooled	0.102 ††	3.606 ††	4.462	1.475 ††	1.555 ††	0.015 ††	2.362 ††	0.377 ††	0.067 ††	1.471	0.108 ††	0.232 ††
L084	Pooled	0.075	6.51	4.24	0.799	1.39	0.106	1.84	0.307	0.159	1.35	0.221	0.374
L097	Pooled	0.08	6.99	4.76	0.857	1.35	0.128	1.74	0.319	0.156	1.38	0.251	0.413
L100	Pooled	0.074	6.49	4.77	0.816	1.33	0.109	1.79	0.317	0.156	1.42	0.246	0.415
L133	Pooled	0.07	9.43 ††	4.44	0.76	1.373	0.112	1.935	0.313	0.142	1.353	0.213	0.361
L139	Pooled	0.082	6.33	4.4	0.83	1.4	0.13	1.83	0.38 ††	0.16	1.44	0.27	0.52 ††
L280	Pooled					1.4	0.13	1.91	0.33				

Lab Code #	Method Code	Reported data for plant Carbon (%w/w)											
		November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP
		11 1	11 2	11 3	11 4	21	22	23	24	41	42	43	44
L009	Pooled	49 ††	39.4 ††	43.7	48.8 ††	44.5	49.3	45.9	49.5	45.1	42.7	46.4	33 ††
L010	Pooled	45.7	36.7	43.8	44.7	43.3	45.8	42.5	52.3	46.7	46.5	46.3	50.4
L011	Pooled	51.5 ††	38.4 ††	45.4 †	48.3 ††	51.1 ††	54.6 ††	52.8 ††	58 ††	51.1 ††	49.5 †	51.5 †	50.6
L013	Pooled	46.3	36	44.1	44.6	42.7	44.7	41.4	52.1	46.5	46.4	46.4	50.6
L015	Pooled	45.4	35.4	43.4	43.7	40.9	43.2	40.3	50.1	44.6	44.3	44.2	48
L019	Pooled	43.2 †	32.6 ††	41.8 †	41.6	39.2	40.2	38	46.6	43	44.3	43.0	48.3
L023	Pooled									45	45	45	49
L028	Pooled					40.3	42.2	38.5	48.6	45	44.7	44.5	48.6
L030	Pooled	42.3 ††	32.9 †	40.6 ††	41	39.1	40.4	37.7	46.7	42.4	42.8	42.7	44.9
L032	Pooled	41.9 ††	32.9 †	40.6 ††	41.1	39	39.9	46.5 †	37.8 ††	42	42.2	41.8	46
L036	Pooled	44.8	35.5	42.7	42.4	41.1	42.4	40.1	48.9				
L040	Pooled	45.1	35	42.8	43.3	40.6	42.5	39.7	49.5	44.5	44	44.2	47
L042	Pooled	45.3	35.3	43.5	44	42	44.5	41.6	51.1	45.7	44.8	44.7	48.3
L046	Pooled	45.9	35	43.5	44	41.6	43.6	40.5	51.3	43.8	43.4	43	45.2
L079	Pooled	45.5	35.4	43.4	43.8	41.2	43.1	40.1	49.8	45.8	45	44.6	48.1
L133	Pooled					86.8 ††	93.4 ††	91.3 ††	98.8 ††	97.5 ††	92.5 ††	95.9 ††	95.2 ††

Lab Code #	Method Code	Reported data for plant Chloride (%w/w)																						
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L005	Pooled	0.037	††	1.8		0.178	††	0.321	†	1.38		0.33		0.49		0.03		0.48	†	0.51		0.27		0.35	††
L009	Pooled	0.238	††	0.587	††	0.175	††	0.26	††	1.33		0.371		0.724	††	0.0904	††	0.052	††	0.101	††	0.038	††	0.044	††
L011	Pooled	0.06		2.21		0.065		0.364		1.15		0.282		0.387		0.068	†	0.43		0.299	††	0.246		0.094	
L013	Pooled	0.06		2.45		0.08		0.4		1.19		0.31		0.42		0.02		0.43		0.42		0.26		0.1	
L016	Pooled	0.054		2.42		0.073		0.4		1.26		0.306		0.422		0.016		0.426		0.416		0.265		0.095	
L018	Pooled	0.061		2.55		0.097	†	0.418		1.24		0.317		0.432		0.016									
L019	Pooled	0.175	††	1.375	††	0.225	††	0.4		1.25		0.225	††	0.45		0.025									
L022	Pooled	0.06		2.41		0.085		0.415		1.14		0.345		0.446		0.031		0.45		0.439		0.296		0.106	
L023	Pooled	0.08	††	2.35		0.12	†	0.42		1.35		0.305		0.41				0.44		0.44		0.29		0.12	
L026	Pooled	0.0575		2.05		0.106	†	0.379		1.22		0.302		0.422		0.044		0.438		0.39		0.265		0.104	
L028	Pooled	0.048		2.1		0.077		0.413		1.24		0.327		0.435		0.02		0.458		0.427		0.26		0.149	†
L030	Pooled	0.055		2.11		0.076		0.355		1.08		0.275		0.38		0.02		0.385	††	0.378		0.225		0.095	
L032	Pooled	0.0496		2.16		0.081		0.372		1.14		0.291		0.035	††	0.409	††	0.438		0.398		0.253		0.243	††
L034	Pooled	0.056		2.47		0.075		0.405		1.27		0.324		0.438		0.013		0.438		0.411		0.273		0.104	
L036	Pooled	0.058		2.4		0.079		0.417		1.07		0.326		0.419		0.02		0.456		0.451		0.274		0.117	
L040	Pooled	0.09	††	2.58		0.05	†	0.31	††	1.2		0.301		0.44		0.073	†	0.505	††	0.534	††	0.302		0.795	††
L064	Pooled	0.02	††	2.93		0.202	††	0.543	††	1.49	††	0.308		0.324	†	0.0354		0.447		0.449		0.287		0.105	
L097	Pooled	0.055		2.43		0.073		0.398		1.19		0.298		0.405		0.015		0.429		0.412		0.255		0.093	
L100	Pooled	0.061		2.3		0.067		0.379		1.17		0.294		0.397		0.017		0.417		0.408		0.25		0.098	
L133	Pooled									0.99		0.19	††	0.34	†	0.05		0.382	††	0.394		0.232		0.085	
L139	Pooled	0.049		2.22		0.225	††	0.421		1.04		0.35		0.47		0.05		0.45		0.47		0.26		0.31	††

31

Lab Code #	Method Code	November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L009	Pooled	0.192	††	0.988	††	0.614	††	0.634	††	0.328		0.001	††	0.0316		0.047	†	0.143	††	0.253		0.128		0.156	
L011	Pooled	0		0.089		0.161		0.158		0.299		0.128		0.312		0.066		0.055		0.236		0.078		0.07	
L013	Pooled	0.05		0.12		0.19		0.24		0.31		0.17		0.37		0.06		0.05		0.3		0.06		0.11	
L016	Pooled	0.054		0.115		0.225		0.28		0.325		0.141		0.353		0.05	†	0.043		0.301		0.028		0.11	
L019	Pooled	0.065		0.138		0.228		0.26		0.1	††	0.1		0.1		0.1	††								
L022	Pooled	0.04		0.14		0.223		0.218		0.38		0.12		0.415		0.06		0.056		0.31		0.065		0.13	
L030	Pooled									0.308		0.123		0.403		0.037	†	0.05		0.266		0.022		0.087	
L032	Pooled	0.043		0.084		0.167		0.085	†	0.299		0.463	††	0.059		0.474	††	0.036	†	0.247		0.034		0.087	
L034	Pooled	0.024		0.034		0.124		0.149		0.331		0.145		0.47		0.063		0.092	††	0.294		0.121		0.17	
L036	Pooled	0.024		0.095		0.174		0.258																	
L040	Pooled	0.06		0.1		0.19		0.22		0.348		0.141		0.563		0.06		0.052		0.308		0.048		0.105	
L044	Pooled	0.01		0.051		0.091		0.12										0.054		0.04	††	0.001		0.046	
L079	Pooled	0.037		0.226	†	0.292		0.277										0.067	†	0.355		0.049		0.117	
L097	Pooled	0.064		0.086		0.178		0.252		0.349		3.91	††	0.301		0.06		0.055		0.299		0.032		0.097	
L133	Pooled									362	††	194	††	681	††	74.3	††	1.07	††	2.74	††	1.3	††	0.338	††
L139	Pooled	0.04		0.05		0.13		0.23		0.3		0.1		0.27		0.06		0.04		0.26		0.03		0.14	

Reported data for plant Cobalt (mg/kg)

Lab Code #	Method Code	Reported data for plant Copper (mg/kg)																					
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L005	Pooled	5.5		2.99	††	26.9		6.53	†	25.2		6.31		15.1		8.22	††	3.77	††	11.2		5.42		11.5	
L006	Pooled	5.19		1.94		27.2		4.45																	
L009	Pooled	7.02	††	4.19	††	27.2		8.86	††	35.8		9.56	††	21.2	†	6.08	††	3.52	††	6.75		4.87		8.32	††
L011	Pooled	4.39		1.34		24.3		4.75		32.4		5.52		17.2		1.62		2.43	†	9.96		5.76		12.8	
L013	Pooled	4.3		1.3		25.6		5		30.7		5.6		17		1.87		1.9		8.4		4.7		10.9	
L015	Pooled	4.3		1.14		23.4		4.86		30.8		5.13		16.7		1.47		1.84		8.09		4.42		10.9	
L016	Pooled	4.79		1.21		26.3		5.28		34.1		6.16		18.4		1.67		1.97		9.77		4.95		12.3	
L018	Pooled	4.8		1.94		26.3		5.43		34.2		6.2		18.1		1.57		2.11		9.51		5.1		11.9	
L019	Pooled	3.77		2.25		20		4.56		27.6		3.06	†	15.3		1.26		2.84	††	8.35		4.68		10.3	
L022	Pooled	4.77		1.83		22.7		5.2		34.6		5.5		16.9		1.9		1.82		9.32		4.65		12.1	
L023	Pooled	4.22		1.04		25.3		4.78		36		6		18		1.6		1.8		9.4		4.5		12	
L026	Pooled	4.45		1.9		22.4		5.16		38.3		6.5		18.4		2.35		1.88		9.07		4.58		11.8	
L028	Pooled	4.5		1.28		25.5		4.15		35		5		20		3	†	1.74		9.1		4.5		11.4	
L030	Pooled	4.34		1.05		25.3		4.89		32.3		5.17		16.9		1.36		1.83		8.74		4.34		11	
L032	Pooled	4.22		1.67		22.1		4.51		29.6		5.1		1.36	††	14.7	††	1.37	†	9.94		4.9		10.7	
L034	Pooled	4.26		0.96		24.1		4.64		28.6		5.12		14.7		1.26		1.76		8.01		4.43		10.2	
L036	Pooled	4.64		1.09		24.1		4.83		31.8		5.9		17.6		1.61		1.95		8.92		5.44		11.4	
L040	Pooled	4.56		1.28		27.6		5.39		41.3		6.8		19.7		1.9		1.61		9.04		5.11		12.3	
L042	Pooled	2.8	††	2.2		26.9		6.7	††	31.5		3.2		17.3		0.9		2.2		11.5		5.6		12.1	
L044	Pooled	2.74	††	0.21		18.4		3.44		19.4	††	1.51	††	10.6	††	0.257		2.17		11.9	††	6.91	††	17.4	††
L046	Pooled	3.74		1.09		20.4		4.24		27.2		4.92		14.8		1.36		1.97		8.85		4.78		10.4	
L064	Pooled	5.25		1.83		28.5		7.17	††	25		4.05		13.3	†	1.05		1.95		11.6	†	9.43	††	12.5	
L079	Pooled	4.99		1.43		24.1		5.66										2.25		9.7		4.9		12.1	
L080	Pooled	6.78	††	3.87	††	20.4		10.0	††	32.6		5.78		17		2.67		0.001	††	6.57		1.78	††	7.5	††
L084	Pooled	4.4		2.01		24.2		4.96		34.2		6.12		17.7		2.07		1.85		8.82		4.55		11.2	
L097	Pooled	5.76	†	0.98		26.4		4.03		34.3		9.52	††	17.1		1.03		1.76		8.94		5.19		11.5	
L100	Pooled	3.82		5.73	††	14.4	††	6.01		35.9		4.3		19.7		1.26		9.79	††	23.1	††	5.65		13.1	
L133	Pooled	4.73		0.63		23		5.33		29.3		5.07		16.13		0.91		0.68	††	5.42	††	3.53	†	8.46	††
L139	Pooled	1.9	††	1.2		22		5.1		32		3.9		18		2		1.7		9		4.8		13	
L280	Pooled									37.6		6.31		20.2		1.83									

Lab Code #	Method Code	Reported data for plant Iron (mg/kg)											
		November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L005	Pooled	536	838	222	439	371	106	80.8	69 ††	98 ††	183	109	205
L006	Pooled	37.8	540	179	280								
L009	Pooled	75.7 ††	600	191	391	905 ††	290 ††	254 ††	188 ††	59.9 ††	114	80.1	181
L011	Pooled	63.6	776	243	443	388	112	79.5	48.6	63.2 ††	153	143 ††	203
L013	Pooled	43.3	573	193	360	317	101	73	44	40	145	348 ††	171
L015	Pooled	50	647	199	400	389	99	76.7	43.6	47	142	106	162
L016	Pooled	50.5	587	203	367	333	91.9	72.1	42.9	38.4	142	76	175
L018	Pooled	56.2	768	229	421	424	122	87.2	48.2	41	160	79.5	171
L019	Pooled	48.2	558	185	368	257	75.3	60.9	32.8	38.3	106	60.5	130 †
L022	Pooled	45.1	601	196	359	355	101	74	45	40	139	89	181
L023	Pooled	40.2	549	187	315	350	98	70	41	39	140	100	170
L026	Pooled	44.2	662	205	371	394	107	77	46.5	37.8	139	73.1	171
L028	Pooled	60.3	298 ††	128 †	200 †	351	85.5	72.8	44.4	37.1	147	89.2	171
L030	Pooled	43.2	716	252 †	426	406	97.2	102 ††	44.2	44.2	176	100	210
L032	Pooled	53	581	180	333	335	95.6	38.6 ††	76.7 ††	55.8 †	147	89.2	155
L034	Pooled	42.6	497	168	305	259	62 ††	59.2	35.6	30.8	108	58.4	136
L036	Pooled	57	738	252 †	478	399	108	182 ††	47.4	47	154	127	161
L040	Pooled	46.7	710	195	450	410	107	73.5	48.5	39	134	228 ††	172
L042	Pooled	34.1	140 ††	131 †	293	266	69	58 †	30 ††	40.8	123	76.8	167
L044	Pooled	42.8	533	177	331	333	60.4 ††	61.9	57	31.3	121	133	132
L046	Pooled	38.8	585	174	350	284	87.1	61.9	38.3	43.9	141		146
L064	Pooled	33.1	622	170	368	372	98.7	76.5	165 ††	48.5	200 ††	99.1	205
L079	Pooled	23.3 †	674	322 ††	280					26.4 †	113	50	86.2 ††
L080	Pooled	42.6	632	269 ††	360	409	102	86.8	54	62.4 ††	164	99.4	170
L084	Pooled	49.2	686	188	371	380	111	77.2	44.3	41.6	137	80	168
L097	Pooled	61	690	218	423	592 ††	120	76.7	48.8	46.2	301 ††	96.6	202
L100	Pooled	47.9	530.4	180	351					44.9	138.6	81.7	162.9
L133	Pooled	31	217 ††	113 ††	112 ††	249	71.9	65.1	34.4	39.5	96.4	60.3	131
L280	Pooled					350	99	76.3	44.9				

Lab Code #	Method Code	Reported data for plant Lead (mg/kg)																			
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)					
		ASP	ASP		ASP		ASP	ASP		ASP		ASP		ASP		ASP		ASP	ASP		ASP		ASP
		11 1	11 2		11 3		11 4	21		22		23		24		41		42	43		44		
L009	Pooled	0.381	0.027		0		0.14	6.54	††	3.56	††	0.926	††	1.21	††	0.152		0.167 †	0.191		0.173		
L011	Pooled	0.015	0.224		0.124		0.43	3.12		0.297		0.328		0.223		0.14		1.46	3.56		0.855	††	
L016	Pooled	0.054	0.673	††	0.601	††	0.807																
L019	Pooled	0.096	0.263		0.181		0.556	2.88		0.2		0.425		0.212		0.44 ††		1.74	6.65		0.64	††	
L022	Pooled	0.09	0.195		0.18		0.76	3.57		0.14		0.245		0.22		0.07		2.16	5.59		0.085		
L023	Pooled							3.3										2.2	4				
L030	Pooled							3.68				0.25		0.154		0.053		1.71	3.63		0.058		
L032	Pooled	0.177	0.18		0.161		0.53	3.15		0.143		0.158		0.241		0.209		2.28	6.7		0.164		
L036	Pooled	0.205	0.281		0.244		0.724	3.6		0.545 †		0.649		0.303 †		0		7.6 ††	16 ††		0.38		
L040	Pooled	0.1	0.16		0.12		0.39	3.04		0.155		0.292		0.149		0.003		1.757	4.635		0.009		
L044	Pooled	0.252	0.561	††	0.323		0.44	3.44		1.17	††	0.341		0.214		0.001		2.46	4.75		0.143		
L079	Pooled	0.07	0.149		0.13		0.586									0.029		2.92	6.5		0.15		
L133	Pooled							3310	††	619	††	684	††	821	††	0.212		2.29	6.75		0.018		

Lab Code #	Method Code	November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L005	Pooled	0.13	0.63	0.36	0.64	0.4	0.1	0.67	0.07	0.11	0.3	0.29	0.22
L006	Pooled	0.153	0.73 †	0.383	0.729								
L009	Pooled	0.112	0.586 †	0.289 ††	0.657	0.382	0.09	0.492 ††	0.062	0.083	0.232	0.21 ††	0.168
L010	Pooled	0.134	0.72	0.302 ††	0.708	0.411	0.094	0.682	0.062	0.095	0.28	0.293	0.198
L011	Pooled	0.159	0.778 ††	0.439 ††	0.821 ††	0.483	0.119	0.791	0.076	0.118 ††	0.332 ††	0.331 ††	0.238 ††
L013	Pooled	0.12	0.62	0.35	0.63	0.39	0.1	0.64	0.07	0.089	0.259	0.274	0.185
L015	Pooled	0.145	0.67	0.374	0.707	0.437	0.117	0.705	0.079	0.108	0.291	0.315	0.216
L016	Pooled	0.137	0.656	0.35	0.697	0.418	0.105	0.693	0.069	0.099	0.275	0.282	0.197
L018	Pooled	0.138	0.715	0.379	0.702	0.431	0.108	0.737	0.069	0.098	0.28	0.289	0.198
L019	Pooled	0.129	0.664	0.369	0.692	0.431	0.096	0.719	0.064	0.108	0.295	0.292	0.216
L022	Pooled	0.133	0.674	0.365	0.673	0.433	0.099	0.728	0.067	0.1	0.273	0.288	0.203
L023	Pooled	0.128	0.68	0.344	0.689	0.44	0.11	0.77	0.069	0.095	0.27	0.24 †	0.19
L026	Pooled	0.13	0.679	0.364	0.69	0.456	0.108	0.741	0.0711	0.095	0.278	0.258	0.193
L028	Pooled	0.12	0.671	0.358	0.631	0.407	0.085 †	0.709	0.067	0.091	0.268	0.265	0.189
L030	Pooled	0.121	0.669	0.367	0.679	0.454	0.105	0.742	0.0628	0.102	0.309	0.289	0.218
L032	Pooled	0.122	0.579 †	0.317	0.643	0.355	0.084 ††	0.050 ††	0.557 ††	0.081	0.237	0.253	0.17
L034	Pooled	0.14	0.659	0.355	0.668	0.405	0.104	0.689	0.066	0.097	0.261	0.279	0.195
L036	Pooled	0.125	0.656	0.347	0.666	0.42	0.106	0.708	0.067	0.099	0.278	0.303	0.2
L040	Pooled	0.123	0.665	0.346	0.67	0.43	0.103	0.71	0.07	0.1	0.26	0.283	0.19
L042	Pooled	0.131	0.686	0.364	0.701	0.466	0.104	0.779	0.074	0.103	0.297	0.288	0.207
L044	Pooled	0.119	0.592 †	0.66 ††	0.627	0.43	0.102	0.749	0.08	0.102	0.265	0.277	0.202
L046	Pooled					32.7 ††	9.01 ††	60.5 ††	6.21 ††	0.093	0.261	0.246 †	0.172
L064	Pooled	0.135	0.695	0.383	0.626	0.431	0.099	0.737	0.062	0.096	0.299	0.279	0.196
L079	Pooled	0.136	0.731 †	0.408	0.749					0.091	0.253	0.256	0.18
L080	Pooled	0.103	0.468 ††	0.439 ††	0.546 ††	0.466	0.063 ††	0.732	0.073	0.061 ††	0.296	0.238 ††	0.157 ††
L084	Pooled	0.126	0.657	0.349	0.65	0.423	0.107	0.684	0.069	0.091	0.262	0.258	0.188
L097	Pooled	0.145	0.682	0.365	0.691	0.445	0.109	0.681	0.07	0.099	0.274	0.284	0.199
L100	Pooled	0.121	0.622	0.33	0.629	0.408	0.095	0.692	0.066	0.105	0.289	0.306	0.207
L133	Pooled	0.1	0.96 ††	0.37	0.72	0.402	0.098	0.692	0.066	0.090	0.244	0.26	0.175
L139	Pooled	0.134	0.701	0.338	0.658	0.44	0.105	0.723	0.073	0.097	0.283	0.291	0.235 †
L280	Pooled					0.45	0.11	0.76	0.07				

Lab Code #	Method Code	Reported data for plant Manganese (mg/kg)																	
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)			
		ASP 11 1		ASP 11 2		ASP 11 3		ASP 11 4		ASP 21		ASP 22		ASP 23		ASP 24		ASP 41	ASP 42	ASP 43	ASP 44
L005	Pooled	53.1		40.0	†	50.1		155		164		35.3		144		66.4		90.3	35.4	34.6	1400
L006	Pooled	49.2		34.7		1150	††	138													
L009	Pooled	49		38.8		50.9		152		337	††	81.5	††	292	††	122	††	75.8	37.1	39.4	1170
L011	Pooled	48.9		39		48		150		176		37.9		154		61.4		88.8	34.4	35.8	1480
L013	Pooled	45.3		32.7		46		145		163		35.3		143		60.3		78.5	29	31.3	1300
L015	Pooled	48		34.8		45.6		145.8		168		37.8		148		62.5		82.5	31.8	35.1	1300
L016	Pooled	52.1		36.1		48		154		168		37.6		147		62.2		85.3	33.2	34.2	1360
L018	Pooled	53.5		42.3	††	51.6		161		174		38		151		59.8		79.6	32.3	33.9	1250
L019	Pooled	44.1		32.3		42.2		145		172		28.9		150		58.2		80.8	30.7	30.4	1160
L022	Pooled	48.5		34.9		46.8		140		167		35.6		143		58.8		86	33	35	1410
L023	Pooled	46.4		33.2		44.4		139		170		38		150		63		84	33	33	1300
L026	Pooled	47		35.7		46.1		143		181		39.2		150		62.9		83.3	33.5	32.4	1240
L028	Pooled	43		33		42		184	††	158		29		142		59		87	36	34	1440
L030	Pooled	48.2		47.1	††	61.8	††	150		182		35.9		160		56.8		88.7	38.2	33.8	1240
L032	Pooled	42.9		29.7		40.7		128		151	†	32.7		49.5	††	123	††	76	32.2	34.2	1260
L034	Pooled	47.2		32.5		43.5		134		145	††	33.2		129		51.7	†	73.4	29.5	30.9	1300
L036	Pooled	44.2		33.3		42.8		136		167		35.9		143		62.3		78	31	35	1260
L040	Pooled	51.4		31.3		43.1		150		177		39.1		150		67.5		89	31	36	1830 ††
L042	Pooled	48.3		36.2		46.8		154		177		28		158		63		75.5	31.6	33.9	1440
L044	Pooled	44.1		32.7		44.3		138		184		38.2		165		73	†	81	30.2	32.4	1210
L046	Pooled	41.2		32.2		38.8		131		126	††	31.1		1.22	††	54.1		83.6	32.3	33.1	
L064	Pooled	38.4		31.8		48		147		178		46.9	††	160		63.7		83.3	38.4	37.8	1300
L079	Pooled	54.7		42.3	††	54.5		166										90.2	37.5	34.9	1430
L080	Pooled	27.6	††	28.7		37.1		125		185		33.6		156		60.2		74.2	30.7	29.7	986 †
L084	Pooled	48		34.3		44.9		142		177		38.9		152		62.7		81.6	33.1	34.4	1340
L097	Pooled	51.2		37.1		46.3		151		188		41.9		151		63.8		87.9	39.4	36.5	1340
L100	Pooled	44.3		32.3		42.5		136		165		31.6		142		58.5		82.1	32.6	36.1	1480
L133	Pooled	36		27		34	††	110	††	161		35		143		58.6		75.8	27.8	29.5	1450
L139	Pooled	54		37		42		146		174		40		153		70		87	34	39	1690 ††
L280	Pooled									171		37.9		153		62.2					

Lab Code #	Method Code	Reported data for plant Molybdenum (mg/kg)																						
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L009	Pooled	0.915		8.63	††	0.778	††	0.348		1.97	††	0.973	†	0.544	††	0.202	†	0.222		0.361	††	0.223		0.254	
L011	Pooled	0.946		6.54		0.361		0.328		0.777		0.498		0.198		0.063		0.249		0.948		0.335		0.072	
L013	Pooled	0.74		7.33		0.25		0.3		0.72		0.42		0.21		0.03		0.39		0.95		0.35		0.1	
L016	Pooled	0.699		6.98		0.202		0.217		0.734		0.406		0.209		0.037		0.281		0.937		0.344		0.149	
L019	Pooled	0.728		5.89		0.413		0.343																	
L022	Pooled	0.525		6.15		0.221		0.265		0.78		0.295		0.24		0.055		0.35		1.04	†	0.5		0.15	
L023	Pooled			6.41																	1.2	†				
L030	Pooled									0.705				0.198		0.018		0.386		0.774	†	0.304		0.089	
L032	Pooled	0.634		6.14		0.515		0.581	†	0.766		0.324		0.186		0.229	†	0.234		0.725	†	0.161	†	0.062	
L034	Pooled	0.66		6.05		0.217		0.327		0.85		0.468		0.354	††	0.252	††	0.327		0.959		0.431		0.311	
L036	Pooled	0.494		6.64		0.027		0.024	††	1.2	††	0.57		0.194		0.127		0.526		0.963		0.405		0.27	
L040	Pooled	0.65		8.75	††	0.33		0.55	†	0.749		0.288		0.107	†	0.024		0.227		0.96		0.343		0.093	
L044	Pooled	0.942		5.75		0.152		0.35		0.669		0.369		0.273	†	0.137		0.353		1.87	††	0.906	††	0.54	††
L079	Pooled	0.415		5.76		0.388		0.217										0.44		0.97		0.36		0.12	
L097	Pooled	0.93		8.21	†	0.221		0.333		0.791		0.585		0.225		0.058		0.456		0.889		0.338		0.181	
L133	Pooled	0.79		5.7		1.31	††	0.75	††	3.58	††	1.63	††	3.18	††	1.34	††	2.96	††	2.52	††	1.87	††	2.38	††
L139	Pooled	0.378		5.66		0.097		0.199	†	0.444	††	0.237		0.182		0.032		0.195		0.528	††	0.222		0	

Reported data for plant Nitrogen (%w/w)

Lab Code #	Method Code	November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP 11 1		ASP 11 2		ASP 11 3		ASP 11 4		ASP 21		ASP 22		ASP 23		ASP 24		ASP 41		ASP 42		ASP 43		ASP 44	
L005	Pooled	2.89	††	1.69		3.48	††	3.89	††	2.67		1.77	††	0.61	††	0.02	†	1.25		2.77		1.61		3.66	
L006	Pooled	1.99		1.52		2.58		2.56																	
L009	Pooled	2.08		1.67		2.65		2.46		3.01		0.99	††	0.635	††	0.223		1.14		3.02		1.47		3.66	
L010	Pooled	2.06		1.76		2.72		2.79		2.82		1.46		0.846		0.194		1.15		2.91		1.5		4.08	
L011	Pooled	1.75		1.45		2.4		2.43		2.6		1.46		0.857		0.288		1.09		2.81		1.41		3.76	
L013	Pooled	1.97		1.64		2.64		2.71		2.86		1.47		0.82		0.2		1.16		3.04		1.45		4.29	††
L015	Pooled	1.96		1.61		2.61		2.63		2.91		1.5		0.873		0.225		1.18		2.95		1.47		3.98	
L016	Pooled	1.92		1.62		2.6		2.63		2.66		1.31		0.823		0.205		1.13		2.78		1.44		3.86	
L018	Pooled	1.95		1.66		2.6		2.66		2.92		1.52		0.924	†	0.277		1.28		3.07		1.58		4.19	
L019	Pooled	1.80		1.57		2.43		2.50		2.65		1.34		0.818		0.228		1.12		2.85		1.49		3.86	
L022	Pooled	1.88		1.58		2.5		2.59		2.8		1.42		0.81		0.31		1.1		2.85		1.46		3.84	
L023	Pooled	1.92		1.63		2.61		2.58		2.4		1.3		0.76		0.19		1.3	†	3		1.6		4	
L026	Pooled	1.84		1.52		2.52		2.51		2.6		1.37		0.825		0.155		1.05		2.77		1.47		3.93	
L028	Pooled	1.79		1.41		2.39		2.39		2.76		1.44		0.824		0.206		1.33	††	2.73		1.63		3.7	
L030	Pooled	1.8		1.52		2.44		2.47		2.54		1.23		0.7	††	0.133		1.08		2.79		1.35		3.81	
L032	Pooled	1.84		1.56		2.49		2.52		2.68		1.39		0.196	††	0.817	††	1.13		2.85		1.43		3.87	
L034	Pooled	1.78		1.51		2.41		2.41		2.56		1.3		0.809		0.147		1.09		2.78		1.4		3.78	
L036	Pooled	1.8		1.8		2.74		2.76		2.78		1.37		0.846		0.229		1.2		2.89		1.61		3.65	
L040	Pooled	1.91		1.62		2.58		2.64		2.77		1.41		0.838		0.211		1.12		2.87		1.42		3.93	
L042	Pooled	2.01		1.64		2.71		2.74		2.78		1.53		0.83		0.148		1.19		2.83		1.42		3.82	
L044	Pooled	1.73		1.43		2.31		2.16	††	2.31		1.33		0.761		0.179		1.39	††	2.72		0.699	††	0.813	††
L046	Pooled	1.95		1.63		2.6		2.65		2.8		1.43		0.843		0.256		1.12		2.84		1.51		3.71	
L064	Pooled	1.7		1.33	††	2.66		2.5		2.9		1.49		0.937	††	0.398	†	1.1		2.97		1.43		4.24	
L079	Pooled	1.93		1.67		2.64		2.69		2.89		1.45		0.85		0.286		1.16		2.85		1.56		3.86	
L084	Pooled	1.86		1.51		2.47		2.48		2.6		1.4		0.8		0.19		1.03		2.7		1.35		3.83	
L097	Pooled	2.03		1.83		2.72		2.73		2.55		1.38		0.951	††	0.355		1.17		2.78		1.53		3.88	
L100	Pooled	2.08		1.73		2.68		2.76		2.95		1.62		0.957	††	0.422	††	1.38	††	3.18	††	1.72	††	4.15	
L133	Pooled																	0.001	††	0.037	††	0.063	††	0.005	††
L139	Pooled	1.88		1.58		2.54		2.56		2.5		1.2		0.65	††	0.16		1		2.7		1.33		3.76	

Lab Code #	Method Code	Reported data for plant Phosphorus (%w/w)																					
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L005	Pooled	0.32		0.21	††	0.18	††	0.24		0.23		0.2		0.29		0.11	††	0.18	††	0.27		0.25		0.32	
L006	Pooled	0.353		0.178		0.137		0.23																	
L009	Pooled	0.332		0.163		0.155	††	0.22		0.243		0.2		0.314		0.021	††	0.123		0.253		0.22		0.286	
L010	Pooled	0.285		0.179		0.135		0.218		0.236		0.183		0.314		0.03		0.133		0.259		0.233		0.302	
L011	Pooled	0.343		0.163		0.133		0.223		0.233		0.183		0.306		0.032		0.132		0.267		0.224		0.311	
L013	Pooled	0.32		0.17		0.14		0.22		0.22		0.19		0.3		0.04	††	0.135		0.27		0.255		0.367	†
L015	Pooled	0.346		0.179		0.139		0.234		0.249	†	0.196		0.333		0.037		0.134		0.271		0.242		0.318	
L016	Pooled	0.35		0.166		0.131		0.223		0.229		0.178		0.299		0.032		0.134		0.267		0.231		0.307	
L018	Pooled	0.342		0.18		0.138		0.224		0.228		0.176		0.309		0.03		0.127		0.266		0.221		0.3	
L019	Pooled	0.32		0.165		0.123		0.221		0.23		0.176		0.309		0.032		0.121		0.239		0.208		0.255	
L022	Pooled	0.33		0.168		0.142		0.22		0.229		0.172		0.293		0.032		0.13		0.259		0.232		0.315	
L023	Pooled	0.356		0.175		0.135		0.213		0.23		0.18		0.29		0.03		0.12		0.25		0.21		0.27	
L026	Pooled	0.321		0.165		0.13		0.216		0.242		0.174		0.306		0.030		0.116		0.258		0.223		0.298	
L028	Pooled	0.324		0.16		0.12		0.2		0.227		0.146	††	0.303		0.033		0.14		0.28		0.23		0.33	
L030	Pooled	0.314		0.16		0.13		0.21		0.229		0.177		0.305		0.031		0.12		0.247		0.215		0.287	
L032	Pooled	0.318		0.153		0.125		0.209		0.226		0.149	††	0.028	††	0.275	††	0.125		0.258		0.228		0.304	
L034	Pooled	0.332		0.166		0.13		0.211		0.214	†	0.165		0.29		0.03		0.121		0.242		0.21		0.284	
L036	Pooled	0.322		0.172		0.13		0.22		0.235		0.186		0.313		0.032		0.127		0.259		0.237		0.305	
L040	Pooled	0.332		0.183		0.141		0.233		0.257	††	0.197		0.333		0.033		0.13		0.27		0.233		0.313	
L042	Pooled	0.352		0.187		0.139		0.204		0.232		0.174		0.304		0.031		0.133		0.231		0.211		0.292	
L044	Pooled	0.297		0.158		0.126		0.209		0.234		0.166		0.337		0.037		0.118		0.221		0.203		0.267	
L046	Pooled																	0.129		0.253		0.202		0.271	
L064	Pooled	0.286		0.156		0.135		0.195		0.273	††	0.18		0.352	††	0.065	††	0.138		0.284		0.261		0.32	
L079	Pooled	0.344		0.191		0.142		0.229										0.131		0.265		0.242		0.301	
L080	Pooled	0.342		0.17		0.144		0.297	††	0.247	†	0.21	††	0.313		0.023	††	0.103	††	0.225		0.195		0.281	
L084	Pooled	0.329		0.165		0.126		0.209		0.227		0.176		0.3		0.029		0.107	†	0.226		0.184		0.272	
L097	Pooled	0.339		0.173		0.137		0.224		0.239		0.184		0.309		0.032		0.144		0.293		0.247		0.342	
L100	Pooled	0.325		0.168		0.128		0.211		0.233		0.176		0.311		0.032		0.128		0.254		0.231		0.292	
L133	Pooled									0.216		0.169		0.288		0.03		0.118		0.225		0.215		0.260	
L139	Pooled	0.337		0.185		0.125		0.212		0.248	†	0.202		0.322		0.036		0.134		0.282		0.237		0.388	††
L230	Pooled	0.312		0.158		0.125		0.207		0.23		0.18		0.32		0.027									
L280	Pooled									0.24		0.19		0.33		0.03									

| Lab Code # | Method Code | Reported data for plant Potassium (%w/w) | | | | | | | | | | | | | | | | | | | | | | |
| | | November 2005 (Round 105) | | | | | | | | February 2006 (Round 305) | | | | | | | | April 2006 (Round 505) | | | | | | | |
		ASP 11 1		ASP 11 2		ASP 11 3		ASP 11 4		ASP 21		ASP 22		ASP 23		ASP 24		ASP 41		ASP 42		ASP 43		ASP 44	
L005	Pooled	0.33		1.53		0.97		2.26		3.47		1.48		2.34		0.39	††	1.09		1.79		1.08		1.71	
L006	Pooled	0.412		1.59		0.985		2.05																	
L009	Pooled	0.333		1.3	†	0.827	††	1.85		1.21	††	0.527	††	1.21	††	0.122	††	0.948		1.56		0.987		1.5	
L010	Pooled	0.372		1.21	††	0.682	††	1.7	††	3.78		1.37		2.4		0.188		1.04		1.83		1.11		1.74	
L011	Pooled	0.497	††	1.64		1		2.33		3.28		1.15	†	2.36		0.282		1.03		1.79		1.12		1.68	
L013	Pooled	0.36		1.53		0.96		2.07		3.37		1.3		2.23		0.2		0.98		1.64		1.12		1.51	
L015	Pooled	0.397		1.68		1.04		2.3		3.88		1.44		2.51		0.227		1.13		1.84		1.25		1.74	
L016	Pooled	0.391		1.71		1.04		2.3		3.98		1.44		2.48		0.202		1.06		1.82		1.13		1.68	
L018	Pooled	0.374		1.71		1.03		2.24		3.74		1.44		2.52		0.206		1.03		1.75		1.15		1.62	
L019	Pooled	0.411		1.57		0.993		2.22		3.7		1.32		2.17		0.152	†	1.08		1.74		1.05		1.59	
L022	Pooled	0.38		1.62		1.01		2.09		3.61		1.38		2.36		0.24		1.05		1.8		1.15		1.66	
L023	Pooled	0.39		1.64		1.01		2.21		4		1.6		2.5		0.21		1.1		1.8		1.1		1.7	
L026	Pooled	0.362		1.72		1.04		2.26		3.68		1.37		2.35		0.162		0.927		1.68		0.974		1.49	
L028	Pooled	0.357		1.6		1.04		2.13		3.78		1.14	†	2.48		0.221		1.01		1.74		1.1		1.57	
L030	Pooled	0.416		1.63		1.01		2.3		3.14		1.33		2.29		0.193		1.21	††	1.92		1.22		1.84	
L032	Pooled	0.371		1.59		0.993		2.21		3.73		1.36		0.183	††	2.31	††	1.05		1.82		1.21		1.7	
L034	Pooled	0.44		1.68		1.04		2.19		3.5		1.41		2.42		0.227		1.05		1.7		1.16		1.6	
L036	Pooled	0.37		1.82		1.22	††	2.03		3.19		1.48		2.21		0.222		1.03		1.74		1.09		1.69	
L040	Pooled	0.366		2.08	††	1.30	††	2.21		3.75		1.39		2.59		0.208		1		1.8		1.1		1.6	
L042	Pooled	0.402		1.51		0.94		1.93		3.79		1.38		2.34		0.238		1.02		1.47	††	1		1.43	
L044	Pooled	0.373		1.43		0.933		1.91		3.26		1.31		2.27		0.208		1.08		1.73		1.14		1.61	
L046	Pooled									197	††	109	††	197	††	20.1	††								
L064	Pooled	0.435		1.7		0.975		2.11		2.64	††	1.41		2.31		0.722	††	1.01		2.08	††	1.04		1.82	
L079	Pooled	0.393		1.72		1.07		2.4										0.954		1.55		0.958		1.41	
L080	Pooled	0.685	††	1.25	††	0.981		1.95		3.99		1.39		2.79	††	0.22		0.778	††	1.53		0.906	††	1.37	
L084	Pooled	0.435		1.61		0.993		2.14		3.53		1.38		2.38		0.28		1.01		1.63		1.08		1.55	
L097	Pooled	0.446		1.8		1.12		2.4		4.03		1.59		2.57		0.238		1.11		1.87		1.25		1.73	
L100	Pooled	0.379		1.55		1.02		1.88		3.32		1.51		2.29		0.403	††	1.14		1.97		1.23		1.73	
L133	Pooled	0.75	††	1.58		1.49	††	3.87	††	3.70		1.49		2.48		0.228		1.08		1.66		1.12		1.55	
L139	Pooled	0.265	††	1.59		0.882	††	2.03		3.77		1.11	††	2.43		0.132	††	0.941		1.87		1.08		1.38	
L280	Pooled									4.04		1.59		2.69		0.22									

40

Reported data for plant Selenium (mg/kg)

Lab Code #	Method Code	November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L009	Pooled	0.063	0.052	0	0	0	0 †	0	0	0.154 ††	0.156	0.172 ††	0.153
L011	Pooled	0.266 ††	0.211	0.52 ††	0.156	0.17	0.143 ††	0.16	0.04				
L013	Pooled	0.08	0.1	0.02	0.03	0.07	0.07	0.15	0.07	0.01	0.15	0.03	0.1
L016	Pooled	0.1	0.142	0.045	0.071	0.078	0.063	0.074	0.026	0.008	0.12	0.019	0.108
L019	Pooled	0.031	0.144	0.069	0.088	0.162	0.088	0.113	0.05				
L022	Pooled	0.2 †	0.9 ††	0.25 ††	0.24 ††								
L023	Pooled												1 ††
L030	Pooled	0.079	0.12	0.025	0.042					0.004	0.117	0.015	0.105
L032	Pooled	0.112	0.231	0.0437	0.011	0.095	0.069	0.014	0.070	0.026 †	0.183	0.0444	0.166
L040	Pooled	0.14	0.17	0	0.02	0.061	0.044	0.063	0.03	0.009	0.013	0.023	0.021
L044	Pooled									2.84 ††	2.33 ††	2.3 ††	1.55 ††
L079	Pooled	0.11	0.54 ††	0.13 †	0.07					0.1 ††	0.21	0.05	0.19
L097	Pooled	0.075	0.166	0.033	0.046	0.088	0.067	0.082	0.027	0.007	0.134	0.023	0.117
L133	Pooled									14 ††	6.57 ††	21.1 ††	1.72 ††

Reported data for plant Silicon (%w/w)

Lab Code #	Method Code	November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L009	Pooled	0.057	0.031	0.115	0.042	0.105	0.237	0.021	0.014	0.080	0.074	0.045	0.01
L011	Pooled	0.515	0.002	0.145	0.451	1.08	1.62	0.262 ††	0.267 ††	0.415	0.461	0.29	0.116 ††
L015	Pooled	0.66	0.083	0.231	0.698	1.23	1.53	0.064	0.043	0.447	0.644	0.275	0.026
L019	Pooled	0.08	0.022	0.034	0.046	0.078	0.021	0.019	0.051	0.028	0.054	0.031	0.006
L036	Pooled	0.397	0.051	0.192	0.292	0.756	1.58	0.053	0.033	0.412	0.538	0.254	0.008
L040	Pooled					0.389	0.64	0.131	0.042	0.256	0.243	0.208	0.025
L133	Pooled	0.03	0.009	0.02	0.02	0.077	0.161	0.024	0.008	0.15	0.353	0.12	0.005

41

		Reported data for plant Sodium (%w/w)											
		November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
Lab Code #	Method Code	ASP 11 1	ASP 11 2	ASP 11 3	ASP 11 4	ASP 21	ASP 22	ASP 23	ASP 24	ASP 41	ASP 42	ASP 43	ASP 44
L005	Pooled	0.1 ††	0.1 ††	0.1 ††	0.1 ††	0.05 ††	0.06 ††	0.11	0.08 ††	0.06 ††	0.08 ††	0.05 ††	0.07 ††
L006	Pooled	0.016 †	0.038 †	0.026 †	0.01								
L009	Pooled	0.011	0.022	0.019	0.006	0.023	0.029	0.117	0.026 †	0.017 †	0.020	0.007 †	0.020 †
L010	Pooled	0.01	0.122 ††	0.124 ††	0.114 ††	0.033 †	0.033	0.108	0.014 ††	0.152 ††	0.193 ††	0.123 ††	0.216 ††
L011	Pooled	0.008	0.024	0.021	0.009	0.015	0.026	0.118	0.021	0.013	0.019	0.004	0.018
L013	Pooled	0.007	0.02	0.02	0.003	0.02	0.03	0.11	0.02	0.011	0.017	0.003	0.014
L015	Pooled	0.01	0.026	0.022	0.007	0.019	0.029	0.126	0.023	0.012	0.017	0.001	0.016
L016	Pooled	0.005	0.025	0.019	0.003	0.015	0.028	0.126	0.021	0.01	0.017	0.000	0.015
L018	Pooled	0.006	0.026	0.02	0.006	0.017	0.028	0.13	0.022	0.012	0.02	0.003	0.016
L019	Pooled	0.03 ††	0.037 †	0.047 ††	0.037 ††	0.031	0.032	0.131	0.019	0.013	0.021	0.004	0.17 ††
L022	Pooled	0.006	0.025	0.02	0.004	0.021	0.026	0.124	0.022	0.01	0.019	0.005	0.018
L023	Pooled	0.004	0.022	0.019	0.003	0.017	0.028	0.12	0.02	0.009	0.015		0.014
L026	Pooled	0.004	0.02	0.014 †	0.004	0.017	0.027	0.123	0.0216	0.01	0.017	0.002	0.015
L028	Pooled	0.011	0.029	0.026 †	0.007	0.016	0.023	0.128	0.022	0.009	0.015	0.000	0.014
L030	Pooled	0.005	0.021	0.018	0.004	0.014	0.024	0.111	0.0189	0.011	0.018	0.001	0.016
L032	Pooled	0.004	0.021	0.016	0.002	0.015	0.0252	0.018 ††	0.112 ††	0.011	0.02	0.004	0.019
L034	Pooled	0.006	0.024	0.018	0.004	0.015	0.027	0.12	0.021	0.011	0.017	0.002	0.015
L036	Pooled	0.004	0.024	0.017	0.004	0.024	0.03	0.146	0.022	0.011	0.018	0.002	0.017
L040	Pooled	0.007	0.077 ††	0.055 ††	0.012	0.02	0.03	0.137	0.019	0.007	0.017	0.003	0.017
L042	Pooled	0.015 †	0.058 ††	0.074 ††	0.042 ††	0.033 †	0.046 ††	0.15	0.003 ††	0.006 †	0.026 †	0.014 ††	0.012
L044	Pooled	0.011	0.025	0.021	0.008	0.023	0.029	0.13	0.03 ††	0.032 ††	0.053 ††	0.017 ††	0.032 ††
L046	Pooled	0.005	0.0225	0.019	0.005	1.62 ††	2.6 ††	12 ††	2.02 ††	0.013	0.022	0.002	0.018
L064	Pooled	0.024 ††	0.033 †	0.022	0.013 †	0.023	0.022	0.116	0.020	0.009	0.016	0.001	0.016
L079	Pooled	0.006	0.023	0.018	0.004					0.01	0.016	0.001	0.016
L080	Pooled	0.059 ††	0.043 ††	0.044 ††	0.033 ††	0.045 ††	0.051 ††	0.143	0.046 ††	0.024 ††	0.034 ††	0.011 ††	0.027 ††
L084	Pooled	0.004	0.0262	0.021	0.003	0.02	0.032	0.135	0.026 †	0.009	0.016	0.001	0.014
L097	Pooled	0.005	0.024	0.019	0.004	0.016	0.029	0.131	0.023	1.17 ††	0.016	0	0.015
L100	Pooled	0.008	0.027	0.035 ††	0.017 †	0.037 ††	0.03	0.141	0.019	0.024 ††	0.037 ††	0.02 ††	0.025 ††
L133	Pooled	0.01	0.02	0.02	0.006	0.018	0.028	0.116	0.024	0.018 †	0.028 †	0.004	0.015
L139	Pooled	0.005	0.066 ††	0.05 ††	0.01	0.027	0.023	0.135	0.021	0.011	0.029 †	0.003	0.017
L280	Pooled					0.02	0.03	0.13	0.02				

Lab Code #	Method Code	Reported data for plant Sulfur (%w/w)																						
		November 2005 (Round 105)								February 2006 (Round 305)								April 2006 (Round 505)							
		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP		ASP	
		11 1		11 2		11 3		11 4		21		22		23		24		41		42		43		44	
L006	Pooled	0.158		2.33	††	0.267		0.187																	
L009	Pooled	0.142		0.173	††	0.29		0.18		0.276		0.106	†	0.14		0.020		0.094		0.258		0.122		0.23	
L010	Pooled	0.169		1.47	†	0.242		0.181		0.294		0.125		0.127		0.023		0.12		0.266		0.14		0.251	
L011	Pooled	0.154		1.81		0.271		0.184		0.294		0.127		0.143		0.024		0.124	†	0.302	†	0.151		0.273	
L013	Pooled	0.14		1.92		0.25		0.17		0.27		0.12		0.13		0.02		0.101		0.247		0.128		0.236	
L015	Pooled	0.159		1.95		0.289		0.194		0.328		0.136		0.158		0.028		0.117		0.281		0.148		0.267	
L016	Pooled	0.161		1.77		0.272		0.187		0.301		0.123		0.143		0.025		0.109		0.269		0.138		0.249	
L018	Pooled	0.161		1.96		0.282		0.188		0.304		0.126		0.148		0.024		0.104		0.269		0.131		0.244	
L019	Pooled	0.166		1.81		0.256		0.184		0.317		0.138		0.119	†	0.025		0.086	†	0.21	††	0.1	††	0.167	††
L022	Pooled	0.161		1.79		0.278		0.187		0.309		0.126		0.14		0.024		0.109		0.265		0.145		0.257	
L023	Pooled	0.168		1.87		0.276		0.191		0.32		0.13		0.15		0.026		0.11		0.28		0.14		0.25	
L026	Pooled	0.155		1.81		0.273		0.184		0.031	††	0.121		0.136		0.023		0.103		0.267		0.138		0.252	
L028	Pooled	0.148		1.84		0.265		0.171		0.285		0.101	††	0.147		0.025		0.106		0.268		0.131		0.25	
L030	Pooled	0.157		1.89		0.284		0.189		0.303		0.127		0.145		0.024		0.106		0.262		0.134		0.243	
L032	Pooled	0.152		1.62		0.232		0.177		0.301		0.123		0.021	††	0.127	††	0.108		0.274		0.143		0.257	
L034	Pooled	0.156		1.86		0.263		0.172		0.28		0.12		0.137		0.023		0.101		0.249		0.126		0.235	
L036	Pooled	0.157		1.94		0.274		0.187		0.331		0.134		0.151		0.024		0.109		0.274		0.156		0.258	
L040	Pooled	0.131		1.94		0.248		0.176		0.31		0.12		0.157		0.03	†	0.103		0.253		0.13		0.24	
L044	Pooled	0.1	††	1.38	††	0.287		0.158	†	0.364	†	0.236	††	0.304	††	0.244	††	0.196	††	0.182	††	0.212	††	0.078	††
L046	Pooled									23.8	††	10.8	††	13.1	††	2.28	††	0.11		0.271		0.129		0.227	
L064	Pooled	0.193	†	1.24	††	0.284		0.199		0.431	††	0.148	†	0.162		0.116	††	0.118		0.312	††	0.132		0.283	†
L079	Pooled	0.135		1.88		0.335	††	0.185										0.1		0.23	††	0.14		0.2	†
L080	Pooled	0.196	††	2.02		0.313		0.214	††																
L084	Pooled	0.148		1.69		0.27		0.164	†	0.322		0.128		0.161		0.024		0.098		0.264		0.136		0.226	
L097	Pooled	0.144		1.89		0.277		0.18		0.313		0.129		0.144		0.025		0.107		0.273		0.132		0.253	
L100	Pooled	0.146		1.78		0.259		0.174		0.306		0.126		0.146		0.025									
L133	Pooled	0.1	††	7.17	††	0.2	††	0.1	††	0.263		0.105	†	0.147		0.024		0.086	†	0.183	††	0.09	††	0.173	††
L139	Pooled	0.298	††	1	††	0.32	††	0.293	††	0.29		0.214	††	0.195	††	0.159	††	0.196	††	0.302	†	0.222	††	0.313	††
L280	Pooled									0.31		0.13		0.15		0.03	†								

Lab Code #	Method Code	Reported data for plant Zinc (mg/kg)											
		November 2005 (Round 105)				February 2006 (Round 305)				April 2006 (Round 505)			
		ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP
		11 1	11 2	11 3	11 4	21	22	23	24	41	42	43	44
L005	Pooled	18.8	10.1	67.5	50.5	42.1	3.06 ††	71.7	23.4 ††	14.9 ††	32.2	21.0	33.4
L006	Pooled	20.2	11	72.5	52.9								
L009	Pooled	17	9.71	63.6	48.1	34.9	7.08 ††	65.1	17.2 ††	10.2	35	21.8	31.2
L011	Pooled	22	12.7 ††	77.8	62.3 ††	50	15.2 ††	83.5	23.7 ††	16.7 ††	35.6	25.7	35.1
L013	Pooled	17.7	7.7	62.3	49.7	38.7	11.3	66	19.3	11.8	27.5	21.7	29.3
L015	Pooled	19.2	9.22	67.3	51.2	43.5	11.9	76.9	20.1	12.2	29	22.6	28.8
L016	Pooled	19.1	7.72	63.1	48.8	44.5	11.1	76.1	19.9	12	30.1	20.5	28.9
L018	Pooled	19.5	9.54	72.8	56.6	46.9	11.7	80.2	20.3	12.3	31	22.4	31.3
L019	Pooled	17	9.53	55.1	52.8	48.5	10.3	79.4	20	10.2	27	17.2	25.4
L022	Pooled	19.2	9	67.9	49.4	44.4	11.3	73.5	19.5	11.7	31.1	19.4	30.2
L023	Pooled	17.1	7.21	59.8	45.1	41	11	71	19	11	31	20	27
L026	Pooled	18.2	8.8	67	50.1	48.1	11.5	80.6	20.2	11	30.1	21.9	29.5
L028	Pooled	18.1	9	64.9	49.1	44	13.3	77.6	19.3	11.8	30.3	19.7	30.1
L030	Pooled	15.5	7.51	63.7	47.8	42.6	9.97	74.1	17.1 ††	10.8	28.6	18.7	27.6
L032	Pooled	17.1	7.95	61.1	46.1	40.7	10.2	16.2 ††	65.5 ††	14.8 ††	33.2	24.1	31.3
L034	Pooled	18.9	9.08	64.4	48	38.5	10.2	68.7	17.1 ††	10.6	26.6	19	26.6
L036	Pooled	17.4	8.85	66.5	48.5	41.5	10.7	74	19.7	11	29	20	28
L040	Pooled	18.6	10.3	70.4	53.5	50.9	12.2	86.7	21.9 †	12.8	31.4	23.4	32.8
L042	Pooled	19.5	8.9	69.7	55	46	12	79	21	10.7	32	20	34.9
L044	Pooled	15.5	8.46	59.6	44.7	39.5	9.31	72.6	19.9	10.4	26	17.7	24.7
L046	Pooled	16.7	9	58.7	47	30.4 ††	11.4	69.9	22.9 ††	12.5	28.9	20.1	27.3
L064	Pooled	17.8	9.83	74.3	54.4	46	13.2	75.4	20.4	12.7	34.2	24.8	30.8
L079	Pooled	19.3	7.9	70.2	55.9					11.7	30.6	20.8	29.3
L080	Pooled	14.7	10.3	57.2	53	44.2	12.1	73.1	19.4	8.14 ††	26.7	17.4	26.9
L084	Pooled	18.2	9.14	70.7	50.6	47.8	11.9	86.9	20	11.3	29.2	21	28.9
L097	Pooled	20.3	9.28	72.2	53.3	44.8	10.8	71.7	18.1	11.9	30.3	21.2	29.1
L100	Pooled	18.1	9.29	65.2	52.7	45.7	14.4 ††	81.2	23 ††	11.7	34.9	25.4	33.5
L133	Pooled	23 ††	11	67	52	40.2	12.2	73.9	19.8	65.3 ††	24.8	19.1	25
L139	Pooled	20	7.2	63	50	47	12	80	22 †	12	32	23	37
L280	Pooled					45	11.6	83.2	20.5				

END

44