

**Australasian  
Soil and Plant  
Analysis Council Inc.**



**ASPAC Plant  
Proficiency Testing  
Program Report  
2004-05**

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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 Interlaboratory 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.

As part of a continuous improvement process that included a comprehensive written review, the ASPAC Executive agreed in 2002-03 that its interlaboratory proficiency programs should be upgraded to increase their frequency and the number of samples assessed annually. As a consequence, ASPAC went to international tender to locate and appoint a service provider able to meet ASPAC's needs at a fair price to participants.

This annual report is the first public exposure of ASPAC's upgraded inter-laboratory proficiency program (ILPP) for plant chemical tests. It covers three "rounds" each of four homogeneous samples sent to 36 participants in August and December 2004 and in April 2005. A similar program for soils, reported separately, commenced in June 2004.

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

The ASPAC Executive also appreciates the effort and commitment made by participating laboratories. By participating they share a commitment to and responsibility for measurement quality.

Vlad Kawaljenko  
Chairperson of ASPAC 2004-2006

## Acknowledgements

All periods of transition have their challenges and the upgrading of ASPAC's ILPPs was no exception. Participating laboratories across Australasia are commended for their patience and loyal support.

We thank the staff of Victoria's DPI-Werribee (previously known as the State Chemistry Laboratory), particularly Bruce Shelley, Pat Johnstone and Kathryn Parker, for their assistance in helping with the preparation and transfer of ASPAC test samples from Victoria, Australia, to Hamilton, New Zealand.

In New Zealand we thank LandCare Research and Hill Laboratories, respectively, for the sample homogeneity testing they undertook for PSL. And within PSL, we extend thanks to Joanne Bedford, other PSL staff and to Dr Philip Poole for their inputs.

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## 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](http://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, and 2002. All 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 first annual report from ASPAC's new, upgraded plant ILPP that commenced in 2004 and now operates out of New Zealand through Proficiency Services Limited (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 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 August 2004, December 2004 and April 2005. It also records program methodology, summary statistics, and a listing of "raw" data by test 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

Proficiency Services Ltd, was contracted by ASPAC as the plant ILPP provider for 2004-05. Accordingly, PSL had responsibility on a "round-by round" basis for sourcing and preparation of 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. 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

A total of 36 laboratories arranged to participate in the ASPAC plant ILPP in 2004-05 but the numbers that reported results varied by "round" and plant test (see Table 1). The most commonly reported tests with an average of 28 laboratories across the three "rounds" were phosphorus (P), calcium (Ca) and magnesium (Mg). The least frequently reported tests were silicon (Si), selenium (Se) and lead (Pb), with averages of 4, 9 and 11 laboratories, respectively. The precise counts for each test and sample are given 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 2004-05 program. Participants were invited to analyse each sample using methods normally employed in their laboratory. The number of tests was limited to 21 as listed in Table 1, noting that participants were not obliged or required to submit results for all tests. Only Si was reported by less than six laboratories. In order to permit a meaningful statistical analysis, a minimum of 6 participating laboratories is 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 2004-05 plant ILPP

2004-05 Plant tests	Symbol	Units	Number of participants		
			August 04	Dec. 04	April 05
Aluminum	Al	mg/kg	19	16	21
Boron	B	mg/kg	25	24	25
Cadmium	Cd	mg/kg	15	10	13
Calcium	Ca	%	29	26	28
Carbon	C	%	14	10	11
Chloride	Cl	% <sup>A</sup>	14	17	17
Cobalt	Co	mg/kg	15	13	13



2004-05 Plant tests	Symbol	Units	Number of participants		
			August 04	Dec. 04	April 05
Copper	Cu	mg/kg	28	26	26
Iron	Fe	mg/kg	27	26	27
Lead	Pb	mg/kg	15	7	10
Magnesium	Mg	%	29	26	28
Manganese	Mn	mg/kg	27	26	28
Molybdenum	Mo	mg/kg	18	14	14
Nitrogen	N	%	28	25	29
Phosphorus	P	%	29	26	28
Potassium	K	%	28	26	28
Selenium	Se	mg/kg	12	7	9
Silicon	Si	%	5	4	3
Sodium	Na	%	26	26	27
Sulfur	S	%	25	24	25
Zinc	Zn	mg/kg	28	26	28

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

All of the listed tests were understood to be total concentrations in the plant material and reported on or around a 65°C oven dry basis, not on an “as received” basis. Details of analytical methods used are not included but known to include methods such as 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.

## 2.4 Sample preparation and identification

Victoria’s DPI-Werribee prepared the bulk samples of plant material used in 2004-05. These samples were oven dried at 65°C, ground, mixed, and sub-sampled into approximately 100g portions. Subsequently, bulk samples in the required quantity were re-mixed and sub-sampled into 20g portions by 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)<sup>1</sup>. These sub-samples were then tested in duplicate for plant total N. Additional tests, including total Zn, total C and total P, were undertaken but not on all samples. The tests were conducted in laboratories accredited to ISO 17025.

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. Examples of the homogeneity data and statistical assessments are summarised in Appendix 2.

<sup>1</sup> 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<sup>2</sup>.

Ultimately, the samples used in the three “rounds” of the 2004-05 program were distributed and coded as follows: round 204 of August 2004 — ASP 81-84; round 404 of December 2004 — ASP 121-124; and round 604 of April 2005 — 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 2004-05 plant ILPP

<i>Sample ID</i>	<i>Sample type</i>
ASP 81	Wheat grain
ASP 82	Hay
ASP 83	Pine needles
ASP 84	Dry potato tuber
ASP 121	Pasture
ASP 122	Cabbage leaf
ASP 123	Wheat
ASP 124	Eucalyptus leaf
ASP 41	Lucerne hay
ASP 42	Wheat grain
ASP 43	Eucalyptus leaf
ASP 44	Dry potato tuber

## 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 interlaboratory proficiency programs of Wageningen University. This procedure<sup>3,4,5,6</sup> is suited to datasets of as few as six laboratories, although larger laboratory populations are best. An outline of the “median / MAD” statistical procedure is provided in Appendix 3, with terms described in Table 3. In addition to medians and MADs, other statistical parameters (also described in Table 3) were calculated before and following the omission of non-conforming results. The “raw” data submitted by participating laboratories on a test-by-test basis are documented in Appendix 4, sometimes after rounding only for table formatting purposes.

<sup>2</sup> Rayment, G.E (2005, In press). Australian efforts to prevent the accidental movement of pests and diseases in soil and plant samples. *Commun. Soil Sci. Plant Anal.*

<sup>3</sup> Houba, V.J.G., Uittenbogaard, J. and Pellen, P. (1996). Wageningen evaluating programmes for analytical laboratories (WEPAL), organization and purpose. *Commun. Soil Sci. Plant Anal.*, 27, 421-429.

<sup>4</sup> Montford, M.A.J. van. (1996). Statistical remarks on laboratory – evaluating programs for comparing laboratories and methods. *Commun. Soil Sci. Plant Anal.* 27, 463-478.

<sup>5</sup> 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.

<sup>6</sup> 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

<i>Statistical term</i>	<i>Meaning and/or derivation</i>
Count or number	Original population size.
Maximum 1	The highest of a range of values, based on the initial data set.
Minimum 1	The lowest of a range of values, based on the initial data set.
Median	The median is the score at the 50 <sup>th</sup> percentile. It is the score or potential score in a distribution of scores, above which and below which one-half of the frequencies fall. 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 <sup>A</sup>	The arithmetic mean (or average) is the sum of the values of a variable divided by their number. It represents the point in a distribution of measurements about which the summed deviations equals zero. The arithmetic mean is sensitive to extreme measurements.
MAD	The <u>M</u> edian of the <u>A</u> bsolute <u>D</u> eviations, calculated as the median of the absolute values of the observations minus their median.
Interquartile range (IQR)	This is calculated by subtracting the score at the 25 <sup>th</sup> percentile (referred to as the first quartile; $Q_1$ ) from the score at the 75 <sup>th</sup> 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. For the 2004-05 program, the algorithm employed was that of SAS Method 4 <sup>7</sup> . In summary, $IQR = Q_3 - Q_1$ .
Normalized IQR	This equates to $IQR \times 0.7413$ , where the latter is a normalizing factor.
Robust % CV <sup>8</sup>	The robust coefficient of variation (Robust % CV) = $(100 \times \text{normalised IQR} / \text{median})$ . 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.
Integer 1 and the letter “f” associated with medians, means, MADs, IQR and Robust %CVs in data summaries.	The integer “1” 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 perhaps statistical “stragglers” (if any).

<sup>A</sup> 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.

<sup>7</sup> SAS Procedure Guide.

<sup>8</sup> “Guide to NATA Proficiency Testing”. 27 pp. (National Association of Testing Authorities, Australia, December 1997).

It is noteworthy that 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 2004-05, witnessed by the inclusion of a few zero values in the "raw" data compilations in Appendix 4.

Interim "round" reports, summarizing measurement performance relative to the performance of all laboratories in the program that undertook the same test/s, were routinely and quickly emailed to laboratory 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 the Interim Report. Also included in the Newsletter was information about upcoming events and operational administration of the program.

Laboratories that participated in the 2004-05 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, 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 for twelve samples across three sequential "rounds", typically over 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 four demerit points for the twelve samples.

Demerit points (if any) were allocated through the identification of "outliers" and "stragglers" by the "median / MAD" statistical procedure mentioned earlier in this report. 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.

Year 2004-05 was a special case as it was the inaugural year of ASPAC's enhanced ILPP and also the inaugural year for application of ASPAC's new demerit points / certification system. Since there was no "previous year", the laboratories who failed to report results on all three "rounds" in 2004-05 automatically accrued maximum demerit

points (3) for tests in each of the missed “rounds”. Laboratories that missed only one “round” remained eligible for ASPAC Certification, conditional on good performance in their other two completed “rounds”.

Finally, when less than six (6) 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.

It is noteworthy that ASPAC’s *Certificates of Proficiency* are only issued on completion of each annual program of three “rounds”. Nowadays, ASPAC provides details of certified laboratories by test on its public web site. Certifications obtained in the 2004-05 Plants’ program remained valid until the corresponding 2005-06 program was complete.

### 3. Summary Statistics

This section provides summary information and data (sometimes rounded only for table formatting purposes) on a test-by-test basis (alphabetical) for each of the 12 samples used across three “rounds” in 2004-05. 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. The meaning or derivation of the terms used in the tabulated summaries is provided in Table 3 and in Appendix 3. All data are expressed on a dry weight basis.

#### 2004-05: Total Aluminum (mg/kg)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	19	19	20	19	16	16	16	16	21	21	21	21
Minimum i	0	14	273	0	118	1730	11	50	10.6	0	44.6	0
Maximum i	38	155	431	30	256	3600	36	101	144	24.6	136	19.7
Median i	5.5	27.3	395	2.45	182	3180	21	60.75	26.9	5	63	2.48
Mean i	9.02	37	378	6.03	179	3060	22.6	66.2	36.1	7.08	68.8	5.15
MAD i	1.7	6.3	28	1.35	28.5	145	4.5	3.35	6.5	2.72	11	2.38
IQR i	4.87	15.6	40.6	4.67	40.6	194	7.78	8.6	13.8	5.51	16.2	5.25
Robust CV% i	89	57	10	190	22	6.1	37	14	51	110	26	210
Median f	5.3	24.8	396	1.42	182	3200	21	60	25.7	4.22	62.7	1.5
Mean f	5.96	25	384	1.57	179	3200	22.6	59.9	26.4	4.04	65.4	1.83
MAD f	1.45	4.8	26	0.68	28.5	111	4.5	1.9	5.2	1.39	8.7	1
IQR f	2.29	7.26	35.6	0.99	40.6	167	7.78	2.78	7.6	2.24	15.9	1.63
Robust CV% f	43	29	9	70	22	5.2	37	4.6	30	53	25	110
Outliers	3	2	1	4	0	2	0	2	3	3	1	4
Stragglers	0	2	0	3	0	0	0	2	1	2	0	2

## 2004-05: Total Boron (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	25	25	26	25	24	24	22	24	25	24	25	24
Minimum i	0.92	2.9	7.59	0.63	17	23	0.73	19	5	1.23	16	0.30
Maximum i	44.6	84	52	44	61	70	50	59	25.9	13	38.4	9.6
Median i	4	16	14.1	3.1	24.5	57	3.55	27.1	16	3.01	26.1	3.50
Mean i	8.35	20.8	17.8	8.13	26	54.5	7.49	28.3	16.7	4.06	26	3.7
MAD i	1.5	2.8	1.9	1.1	1.5	7	1.2	1.95	1.4	0.63	2.6	0.84
IQR i	5.45	4.93	2.98	5.02	2.22	10.9	3.44	2.97	2.19	2.2	3.85	1.3
Robust CV% i	140	31	21	160	9.1	19	97	11	14	73	15	37
Median f	3.3	16	14	2.8	25	57.5	3.33	27	16	2.97	25.9	3.27
Mean f	3.66	16	13.9	2.93	24.9	57.2	3.76	26.5	16	2.98	25.5	3.27
MAD f	0.9	1.5	1.6	0.3	1	6.65	0.88	2	1.1	0.51	2.5	0.8
IQR f	1.85	2.39	2.46	0.45	1.93	10.4	1.78	2.59	1.67	0.65	3.71	1.22
Robust CV% f	56	15	18	16	7.7	18	54	9.6	10	22	14	37
Outliers	6	5	4	7	5	2	3	3	4	6	1	2
Stragglers	0	0	0	3	1	0	1	0	0	0	0	0

## 2004-05: Total Cadmium (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	15	15	15	15	10	10	10	10	13	12	12	13
Minimum i	0	0	0	0	0.068	0.118	0.099	0.005	0.034	0.005	0.0066	0.0593
Maximum i	0.41	3.5	1.52	0.29	0.354	0.22	0.154	0.202	1.12	0.559	1.09	0.941
Median i	0.011	0.069	0.045	0.075	0.0865	0.1425	0.118	0.0105	0.067	0.0095	0.011	0.081
Mean i	0.0757	0.32	0.149	0.0916	0.114	0.155	0.119	0.0496	0.157	0.0782	0.123	0.173
MAD i	0.011	0.015	0.007	0.013	0.0125	0.0145	0.0135	0.005	0.007	0.0036	0.0035	0.01
IQR i	0.0415	0.107	0.0163	0.0178	0.0267	0.0384	0.0224	0.0454	0.0259	0.054	0.0524	0.0578
Robust CV% i	380	160	36	24	31	27	19	430	39	570	480	71
Median f	0.0065	0.065	0.045	0.075	0.086	0.14	0.118	0.01	0.066	0.007	0.01	0.076
Mean f	0.0068	0.0628	0.0468	0.0763	0.0868	0.135	0.119	0.0118	0.0656	0.0076	0.0101	0.0756
MAD f	0.005	0.009	0.004	0.004	0.012	0.005	0.0135	0.003	0.003	0.0015	0.002	0.005
IQR f	0.0083	0.0122	0.0048	0.0096	0.0185	0.0185	0.0224	0.0078	0.0054	0.0036	0.0030	0.0082
Robust CV% f	130	19	11	13	22	13	19	78	8.1	51	30	11
Outliers	4	5	4	4	1	1	0	2	4	3	3	3
Stragglers	1	1	2	2	0	2	0	0	1	1	0	1

## 2004-05: Total Calcium (%)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	30	29	26	26	26	26	28	28	28	28
Minimum i	0.014	0.402	0.143	0.008	0.698	1.87	0.054	0.632	1.12	0.032	0.652	0.0195
Maximum i	0.420	1.569	1.307	0.120	0.946	4.76	1.64	0.893	1.57	0.056	0.9	0.0495
Median i	0.035	1.3	0.4675	0.022	0.8615	3.07	0.149	0.719	1.325	0.039	0.721	0.023
Mean i	0.0625	1.28	0.51	0.0268	0.86	3.12	0.207	0.721	1.32	0.040	0.732	0.0245
MAD i	0.005	0.080	0.021	0.004	0.053	0.180	0.009	0.036	0.050	0.003	0.031	0.002
IQR i	0.0083	0.1150	0.0326	0.0062	0.0726	0.2630	0.0228	0.0575	0.0825	0.0053	0.0499	0.0032
Robust CV% i	24	8.8	7	28	8.4	8.6	15	8	6.2	13	6.9	14
Median f	0.035	1.32	0.468	0.022	0.8615	3.07	0.149	0.719	1.32	0.039	0.709	0.022
Mean f	0.036	1.33	0.468	0.0218	0.86	3.12	0.151	0.714	1.31	0.0386	0.715	0.0222
MAD f	0.004	0.050	0.014	0.002	0.053	0.120	0.008	0.035	0.040	0.002	0.025	0.001
IQR f	0.0067	0.0815	0.0208	0.0043	0.0726	0.2520	0.0133	0.0567	0.0778	0.0037	0.0385	0.0017
Robust CV% f	19	6.2	4.4	20	8.4	8.2	9	7.9	5.9	9.5	5.4	7.5
Outliers	4	1	5	4	0	2	5	1	3	3	2	5
Stragglers	0	3	2	2	0	2	0	0	0	0	1	1

## 2004-05: Total Carbon (%)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	14	14	15	14	10	10	10	10	11	11	11	11
Minimum i	40.1	36.7	46.1	38.5	41.6	35.5	41.9	49.7	41.0	40.1	49.6	38.8
Maximum i	46.6	47.2	52.4	45.3	46.0	41.0	47.0	54.1	47.5	46.9	56.2	45.1
Median i	43.8	44.0	49.5	42.8	44.3	38.7	44.5	53.0	43.3	42.7	51.6	41.0
Mean i	43.4	43.5	49.3	42.1	43.9	38.1	44.3	52.5	43.4	42.6	51.8	41.2
MAD i	1.35	1.25	1.9	1	1.3	1.15	1.5	1	0.7	0.8	1.1	1.4
IQR i	2.46	2.85	3.78	2.06	2.87	2.82	2.67	1.81	1.41	1.78	2	2.52
Robust CV% i	5.6	6.5	7.6	4.8	6.5	7.3	6	3.4	3.3	4.2	3.9	6.1
Median f	43.8	44.1	49.5	42.8	44.3	38.7	44.5	53.0	43.3	42.4	51.6	41
Mean f	43.4	44	49.3	42.1	43.9	38.1	44.3	52.5	43	42.2	51.8	41.2
MAD f	1.35	1.1	1.9	1	1.3	1.15	1.5	1	0.7	0.9	1.1	1.4
IQR f	2.46	2.04	3.78	2.06	2.87	2.82	2.67	1.81	1.54	1.74	2	2.52
Robust CV% f	5.6	4.6	7.6	4.8	6.5	7.3	6	3.4	3.6	4.1	3.9	6.1
Outliers	0	1	0	0	0	0	0	0	1	1	0	0
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

## 2004-05: Total Chloride (%)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	14	14	14	14	17	17	17	17	17	17	17	17
Minimum i	0.004	0.518	0.105	0.028	0.540	1.39	0.325	0.075	0.457	0.038	0.103	0.044
Maximum i	0.27	0.892	0.27	0.156	0.842	1.74	0.582	0.5	1.05	0.299	0.49	0.452
Median i	0.100	0.596	0.142	0.050	0.650	1.55	0.446	0.203	0.575	0.094	0.184	0.051
Mean i	0.116	0.629	0.15	0.0615	0.652	1.55	0.453	0.241	0.602	0.112	0.215	0.0853
MAD i	0.016	0.034	0.025	0.010	0.032	0.070	0.027	0.037	0.032	0.015	0.034	0.006
IQR i	0.0469	0.0662	0.0335	0.018	0.0589	0.119	0.0493	0.0808	0.0619	0.0182	0.0738	0.0236
Robust CV% i	47	11	24	36	9.1	7.7	11	40	11	19	40	47
Median f	0.097	0.59	0.132	0.05	0.645	1.55	0.446	0.185	0.572	0.094	0.183	0.050
Mean f	0.102	0.582	0.132	0.0543	0.641	1.55	0.453	0.198	0.574	0.097	0.188	0.049
MAD f	0.010	0.024	0.017	0.009	0.029	0.070	0.024	0.032	0.027	0.009	0.033	0.001
IQR f	0.0169	0.0297	0.0291	0.0133	0.0506	0.119	0.0319	0.0513	0.0421	0.0172	0.0764	0.0013
Robust CV% f	17	5	22	27	7.8	7.7	7.1	28	7.4	18	42	2.6
Outliers	3	2	1	1	1	0	2	3	1	2	2	6
Stragglers	1	1	1	0	0	0	0	0	0	1	0	3

## 2004-05: Total Cobalt (mg/kg)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	15	15	15	15	13	13	13	13	13	13	13	13
Minimum i	0	0	0	0	0.277	0.45	0.005	0.006	0.165	0	0	0
Maximum i	0.18	1.59	0.56	0.51	0.88	1.94	0.1	0.18	0.67	0.4	0.4	0.4
Median i	0.020	0.314	0.075	0.060	0.587	0.820	0.055	0.039	0.330	0.018	0.035	0.041
Mean i	0.035	0.460	0.114	0.126	0.576	0.872	0.050	0.051	0.343	0.048	0.086	0.068
MAD i	0.008	0.049	0.015	0.030	0.067	0.100	0.013	0.009	0.050	0.012	0.015	0.014
IQR i	0.0104	0.0778	0.0252	0.0756	0.102	0.166	0.0289	0.0133	0.0823	0.0196	0.0374	0.0222
Robust CV% i	52	25	34	130	17	20	53	34	25	110	110	54
Median f	0.018	0.295	0.073	0.040	0.614	0.780	0.055	0.034	0.330	0.017	0.025	0.041
Mean f	0.019	0.293	0.073	0.041	0.627	0.783	0.050	0.034	0.316	0.018	0.028	0.040
MAD f	0.004	0.030	0.015	0.011	0.055	0.098	0.013	0.006	0.048	0.009	0.009	0.013
IQR f	0.00936	0.0497	0.0226	0.0226	0.0882	0.152	0.0289	0.00964	0.0734	0.0159	0.0167	0.02
Robust CV% f	52	17	31	57	14	19	53	28	22	94	67	49
Outliers	3	4	3	3	1	1	0	2	1	1	2	1
Stragglers	0	0	0	2	1	0	0	0	0	0	1	0



## 2004-05: Total Copper (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	29	28	26	26	26	26	26	26	26	26
Minimum i	2.06	2.3	2	1.15	4.24	1.15	1.24	1.32	1.82	0.89	0.54	0.2
Maximum i	10.8	9.5	7.8	8.0	10.9	7.50	6.33	6.1	8.02	6.82	7.74	6.2
Median i	3.73	4.925	3.30	2.50	7.87	4.18	2.0	4.2	5.13	3.89	4.26	2.69
Mean i	4.36	5.23	3.69	2.89	7.92	4.4	2.33	4.13	5.18	3.96	4.08	2.79
MAD i	0.375	0.45	0.4	0.25	0.6	0.565	0.22	0.35	0.395	0.38	0.315	0.2
IQR i	0.873	0.962	0.778	0.352	0.964	1.02	0.426	0.463	0.608	0.58	0.484	0.302
Robust CV% i	23	20	24	14	12	24	21	11	12	15	11	11
Median f	3.6	4.81	3.2	2.5	7.87	4.1	1.96	4.2	5.03	3.85	4.31	2.65
Mean f	3.62	4.78	3.21	2.51	7.95	4.17	2.01	4.27	5.07	3.83	4.3	2.67
MAD f	0.175	0.205	0.30	0.115	0.55	0.44	0.14	0.15	0.33	0.3	0.255	0.175
IQR f	0.246	0.321	0.445	0.209	0.815	0.738	0.193	0.352	0.519	0.456	0.398	0.258
Robust CV% f	6.8	6.7	14	8.4	10	18	9.8	8.4	10	12	9.2	9.7
Outliers	6	7	4	5	2	3	4	4	3	3	4	4
Stragglers	4	3	3	3	0	1	3	2	1	1	0	0

## 2004-05: Total Iron (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	27	27	28	27	26	26	26	26	27	27	27	27
Minimum i	22	49	81	7.8	158	1434	28.4	30	53.5	19.1	45.3	9.53
Maximum i	65	105	251	32	372	5602	149	81.8	240	134	166	119
Median i	30	68.5	112	15	234	3465	46.1	59.4	69	31	57.8	15.4
Mean i	33.8	70.2	116	16.3	236	3400	51.7	60.4	81.6	36.7	68.1	20.8
MAD i	3	6.5	9.5	2	23	288	6.35	5.3	6.1	3.6	6.1	2.4
IQR i	4.45	11.1	17.1	2.97	35.6	481	11.9	10.3	10.3	5.34	9.56	3.71
Robust CV% i	15	16	15	20	15	14	26	17	15	17	17	24
Median f	29	68	111	14.5	231	3570	46	59.4	64.8	31.0	56.5	15.1
Mean f	28.6	67.9	110	14.6	227	3470	47.8	60.8	67	30.8	56.4	15.3
MAD f	2	6	8.5	1.2	19	238	6	4.8	6.2	3.2	3.7	2.1
IQR f	3.71	9.41	16.2	1.95	30.6	361	9.64	9.21	8.08	4.87	6.3	3.13
Robust CV% f	13	14	15	13	13	10	21	16	12	16	11	21
Outliers	5	1	2	3	2	5	1	2	4	2	4	2
Stragglers	1	1	0	4	0	1	0	0	0	1	1	1

## 2004-05: Total Lead (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	15	15	15	15	7	7	7	7	10	10	10	10
Minimum i	0	0	0	0	0.9	0.279	0.001	0.06	0	0.0106	0.04	0.005
Maximum i	2.25	2.5	2.8	2.6	1.65	1.2	0.361	0.712	1	3.16	3.16	2.63
Median i	0.057	0.145	0.142	0.040	1.20	0.840	0.071	0.289	0.073	0.068	0.203	0.050
Mean i	0.401	0.354	0.315	0.258	1.20	0.808	0.125	0.323	0.174	0.465	0.553	0.405
MAD i	0.048	0.062	0.066	0.04	0.25	0.154	0.031	0.207	0.033	0.042	0.154	0.0435
IQR i	0.117	0.102	0.0993	0.145	0.415	0.3	0.162	0.384	0.0815	0.251	0.381	0.249
Robust CV% i	210	70	70	360	35	36	230	130	110	370	190	500
Median f	0.044	0.117	0.141	0.037	1.20	0.840	0.066	0.289	0.071	0.049	0.139	0.040
Mean f	0.060	0.116	0.137	0.053	1.20	0.808	0.052	0.323	0.082	0.062	0.154	0.052
MAD f	0.0355	0.0385	0.0585	0.037	0.25	0.154	0.014	0.207	0.031	0.0315	0.0903	0.026
IQR f	0.0621	0.0652	0.0933	0.0671	0.415	0.3	0.0408	0.384	0.061	0.0526	0.138	0.0578
Robust CV% f	140	56	66	180	35	36	62	130	86	110	100	150
Outliers	3	3	1	3	0	0	2	0	1	2	2	2
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

## 2004-05: Total Magnesium (%)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	30	29	26	26	26	26	28	28	28	28
Minimum i	0.05	0.172	0.118	0.02	0.195	0.152	0.08	0.07	0.18	0.09	0.069	0.033
Maximum i	0.38	3.1	0.664	0.128	0.287	0.63	0.112	0.877	0.467	0.128	0.121	0.406
Median i	0.105	0.224	0.182	0.040	0.223	0.295	0.096	0.104	0.227	0.107	0.104	0.040
Mean i	0.111	0.324	0.194	0.041	0.224	0.301	0.095	0.133	0.233	0.107	0.102	0.053
MAD i	0.006	0.012	0.008	0.002	0.014	0.017	0.006	0.006	0.009	0.006	0.005	0.002
IQR i	0.0111	0.0156	0.0163	0.0033	0.0198	0.0269	0.0083	0.0087	0.0150	0.0087	0.0082	0.0025
Robust CV% i	11	6.9	9	8.4	8.9	9.1	8.7	8.4	6.6	8.2	7.9	6.3
Median f	0.105	0.224	0.180	0.040	0.222	0.299	0.096	0.104	0.227	0.107	0.105	0.040
Mean f	0.105	0.225	0.179	0.039	0.222	0.297	0.095	0.103	0.227	0.107	0.104	0.040
MAD f	0.004	0.009	0.007	0.001	0.014	0.019	0.006	0.004	0.007	0.006	0.005	0.001
IQR f	0.0065	0.0113	0.0130	0.0015	0.0200	0.0252	0.0083	0.0063	0.0104	0.0087	0.0066	0.0015
Robust CV% f	6.2	5	7.2	3.7	9	8.4	8.7	6.1	4.6	8.2	6.3	3.6
Outliers	4	4	4	7	1	3	0	4	4	0	2	5
Stragglers	1	1	1	2	0	0	0	1	3	0	0	1

## 2004-05: Total Manganese (mg/kg)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	27	27	28	27	26	26	26	26	28	28	28	28
Minimum i	19.2	49	107	1	112	176	73	220	50	21	273	2.73
Maximum i	55.2	71	318.9	21	149	450	100	1878	73.8	31	1830	38
Median i	25.8	61	136	3.4	122	348	81	1603	62	26.8	1601	3.91
Mean i	26.4	61.2	142	3.9	124	347	81.9	1530	60.9	26.8	1550	5.96
MAD i	1.2	4.2	6.5	0.45	6	22.5	3.5	85	3.6	1.75	80	0.6
IQR i	2.22	5.71	9.45	0.67	10	37.6	5.13	145	6.38	2.87	124	1.8
Robust CV% i	8.6	9.4	7	20	8.2	11	6.4	9	10	11	7.8	46
Median f	25.9	60.8	136	3.4	121	355	80	1618	62.3	26.8	1612	3.75
Mean f	25.6	61.2	136	3.39	123	358	81.2	1620	60.9	26.8	1600	3.74
MAD f	0.85	4.2	6	0.35	5	23	3.3	42	3.6	1.75	68	0.25
IQR f	0.964	5.71	9.08	0.565	9.64	36	4.71	81.5	6.38	2.87	119	0.311
Robust CV% f	3.7	9.4	6.7	17	8	10	5.9	5	10	11	7.4	8.3
Outliers	6	0	2	2	1	2	1	2	0	0	1	6
Stragglers	1	0	0	1	0	2	0	3	0	0	0	3

## 2004-05: Total Molybdenum (mg/kg)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	18	18	18	18	14	14	14	14	14	14	13	14
Minimum i	0	0	0	0	0.084	0.925	0.127	0.01	0.399	0.353	0	0
Maximum i	1.50	1.34	0.43	0.40	0.96	22.0	0.76	21.0	1.09	1.12	1.12	1.00
Median i	0.525	0.583	0.070	0.062	0.582	18.6	0.497	0.055	0.582	0.497	0.045	0.056
Mean i	0.569	0.662	0.122	0.11	0.566	17.7	0.478	1.61	0.62	0.55	0.172	0.155
MAD i	0.086	0.073	0.041	0.019	0.060	0.825	0.153	0.020	0.052	0.049	0.025	0.015
IQR i	0.153	0.156	0.101	0.0956	0.14	1.78	0.225	0.0799	0.0953	0.0784	0.0345	0.0542
Robust CV% i	29	27	150	150	24	9.6	45	150	16	16	77	98
Median f	0.52	0.557	0.06	0.06	0.603	18.6	0.497	0.05	0.569	0.489	0.024	0.053
Mean f	0.523	0.557	0.063	0.056	0.599	18.800	0.478	0.051	0.550	0.467	0.034	0.055
MAD f	0.058	0.047	0.026	0.014	0.047	0.57	0.153	0.016	0.038	0.043	0.021	0.009
IQR f	0.086	0.074	0.042	0.017	0.059	1.320	0.225	0.025	0.077	0.062	0.022	0.016
Robust CV% f	17	13	71	28	9.8	7.1	45	49	13	13	93	30
Outliers	3	4	2	5	4	1	0	3	2	2	2	3
Stragglers	0	1	2	0	1	1	0	0	0	0	0	1

## 2004-05: Total Nitrogen (%)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	29	28	25	25	25	25	29	29	29	29
Minimum i	1.75	1.18	1.03	0.76	1.57	1.7	0.50	0.86	2.31	1.81	1.28	0.56
Maximum i	3.27	4.74	1.59	1.11	2.49	3.2	1.6	1.61	3.2	2.44	1.6	1.11
Median i	2.025	2.75	1.21	0.99	2.31	2.66	1.14	1.45	2.8	2	1.39	0.96
Mean i	2.06	2.8	1.22	0.98	2.26	2.62	1.12	1.42	2.8	2.02	1.42	0.949
MAD i	0.095	0.140	0.050	0.054	0.110	0.150	0.060	0.050	0.080	0.060	0.050	0.038
IQR i	0.1450	0.2300	0.0815	0.0825	0.1700	0.2410	0.1070	0.0890	0.1150	0.1040	0.0852	0.0567
Robust CV% i	7.1	8.4	6.7	8.4	7.4	9.1	9.4	6.1	4.1	5.2	6.1	5.9
Median f	2.01	2.71	1.20	0.99	2.33	2.68	1.14	1.46	2.8	2.00	1.39	0.96
Mean f	2.01	2.74	1.2	0.99	2.29	2.66	1.13	1.45	2.8	2.01	1.41	0.96
MAD f	0.100	0.120	0.050	0.051	0.105	0.140	0.060	0.055	0.060	0.055	0.050	0.035
IQR f	0.1480	0.2000	0.0797	0.0815	0.1760	0.2300	0.1040	0.0871	0.0852	0.0945	0.0815	0.0556
Robust CV% f	7.4	7.4	6.7	8.2	7.6	8.6	9.1	6	3	4.7	5.9	5.8
Outliers	1	4	1	1	1	1	2	1	3	1	1	2
Stragglers	0	0	0	0	0	0	0	0	1	0	0	0

## 2004-05: Total Phosphorus (%)

Statistical parameters	Plant sample identification and values											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	29	29	30	29	26	26	26	26	28	28	28	28
Minimum i	0.16	0.19	0.09	0.12	0.24	0.23	0.11	0.08	0.21	0.16	0.07	0.12
Maximum i	0.28	0.32	0.18	0.19	0.29	0.43	0.19	0.80	0.35	0.29	0.16	0.20
Median i	0.20	0.24	0.13	0.15	0.27	0.30	0.13	0.09	0.25	0.20	0.09	0.15
Mean i	0.20	0.24	0.13	0.15	0.27	0.31	0.13	0.12	0.25	0.21	0.09	0.15
MAD i	0.010	0.012	0.008	0.007	0.009	0.022	0.006	0.005	0.010	0.010	0.004	0.004
IQR i	0.0159	0.0156	0.0122	0.0148	0.0128	0.0302	0.0072	0.0067	0.0143	0.0163	0.0080	0.0072
Robust CV% i	8	6.4	9.3	9.7	4.7	10	5.6	7.6	5.8	8.1	8.8	4.8
Median f	0.20	0.24	0.13	0.15	0.27	0.30	0.13	0.09	0.25	0.20	0.09	0.15
Mean f	0.20	0.24	0.13	0.15	0.27	0.30	0.13	0.09	0.25	0.20	0.09	0.15
MAD f	0.008	0.011	0.008	0.007	0.009	0.022	0.005	0.004	0.008	0.009	0.001	0.002
IQR f	0.0141	0.0148	0.0117	0.0148	0.0128	0.0311	0.0065	0.0059	0.0119	0.0130	0.0022	0.0028
Robust CV% f	7.1	6.1	8.9	9.7	4.7	10	5	6.7	4.8	6.4	2.5	1.8
Outliers	2	3	2	2	0	1	1	3	2	3	4	5
Stragglers	2	0	0	0	0	0	1	0	1	0	6	3

## 2004-05: Total Potassium (%)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	29	28	26	26	26	26	28	28	28	28
Minimum i	0.17	1.61	0.29	0.32	1.64	1.25	0.90	0.08	1.58	0.23	0.58	0.36
Maximum i	3.80	2.79	6.30	3.20	2.53	2.88	1.20	1.06	2.90	0.64	1.01	0.83
Median i	0.35	2.50	0.63	0.53	1.97	2.48	1.02	0.76	2.45	0.36	0.76	0.54
Mean i	0.46	2.41	0.80	0.62	1.98	2.44	1.02	0.74	2.39	0.36	0.75	0.53
MAD i	0.016	0.140	0.040	0.034	0.105	0.125	0.080	0.056	0.125	0.031	0.034	0.032
IQR i	0.025	0.204	0.053	0.056	0.152	0.195	0.123	0.078	0.182	0.050	0.053	0.048
Robust CV% i	7.1	8.2	8.4	11	7.7	7.9	12	10	7.4	14	6.9	9
Median f	0.35	2.52	0.63	0.53	1.96	2.51	1.02	0.76	2.45	0.36	0.76	0.54
Mean f	0.34	2.50	0.62	0.53	1.95	2.53	1.02	0.75	2.45	0.35	0.76	0.53
MAD f	0.012	0.120	0.040	0.031	0.100	0.110	0.080	0.051	0.120	0.029	0.028	0.030
IQR f	0.022	0.174	0.050	0.049	0.145	0.178	0.123	0.073	0.180	0.049	0.045	0.047
Robust CV% f	6.3	6.9	8	9.2	7.4	7.1	12	9.7	7.3	14	5.9	8.7
Outliers	4	2	2	2	1	1	0	2	2	2	3	2
Stragglers	2	1	0	0	0	2	0	0	0	0	0	0

## 2004-05: Total Selenium (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	12	12	12	12	7	7	7	7	9	9	9	9
Minimum i	0	0	0	0	0.035	0.110	0.008	0.040	0.002	0.055	0.040	0
Maximum i	0.685	0.300	0.347	0.200	0.19	0.241	0.099	0.219	10	10	10	10
Median i	0.14	0.015	0.05	0.006	0.048	0.152	0.023	0.084	0.024	0.15	0.08	0.01
Mean i	0.171	0.062	0.088	0.029	0.081	0.170	0.038	0.092	1.14	1.24	1.2	1.13
MAD i	0.039	0.013	0.006	0.006	0.008	0.012	0.014	0.015	0.014	0.035	0.020	0.009
IQR i	0.0625	0.0641	0.0467	0.0276	0.0904	0.0741	0.0600	0.0193	0.0682	0.0634	0.0723	0.0341
Robust CV% i	45	430	93	460	190	49	260	23	280	42	90	340
Median f	0.140	0.009	0.049	0.005	0.045	0.151	0.023	0.077	0.011	0.150	0.079	0.006
Mean f	0.137	0.010	0.047	0.006	0.043	0.149	0.038	0.071	0.018	0.143	0.076	0.008
MAD f	0.025	0.007	0.004	0.004	0.004	0.003	0.014	0.009	0.009	0.028	0.001	0.006
IQR f	0.0406	0.0120	0.0059	0.0056	0.0082	0.0087	0.0600	0.0224	0.0237	0.0415	0.0089	0.0126
Robust CV% f	29	130	12	110	18	5.8	260	29	220	28	11	210
Outliers	1	3	4	3	2	2	0	1	2	1	2	2
Stragglers	1	1	0	0	0	1	0	0	0	0	2	0

## 2004-05: Total Silicon (%)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	5	5	5	5	4	4	4	4	3	3	3	3
Minimum i	0	0	0	0	0.068	0.175	0.019	0.001	0.009	0.0004	0.004	0
Maximum i	0.006	0.022	0.026	0.004	0.512	0.54	0.459	0.059	77.5	2.2	26.5	2.9
Median i	0.003	0.007	0.008	0.002	0.258	0.373	0.233	0.010	0.054	0.084	0.01	0
Mean i	0.0028	0.0082	0.0096	0.002	0.274	0.365	0.236	0.0198	25.9	0.761	8.84	0.967
MAD i	0.002	0.004	0.007	0.001	0.166	0.132	0.176	0.007	0.045	0.0836	0.006	0
IQR i	0.00334	0.0104	0.0141	0.00222	0.299	0.239	0.296	0.0343	57.4	1.63	19.6	2.15
Robust CV% i	110	150	180	110	120	64	130	360	110000	1900	200000	0
Median f	0.003	0.007	0.008	0.002	0.258	0.373	0.233	0.010	0.032	0.042	0.007	0
Mean f	0.003	0.008	0.010	0.002	0.274	0.365	0.236	0.020	0.032	0.042	0.007	0
MAD f	0.002	0.004	0.007	0.001	0.166	0.132	0.176	0.007	0.0225	0.0418	0.003	0
IQR f	0.0033	0.0104	0.0141	0.0022	0.299	0.239	0.296	0.0343				
Robust CV% f	110	150	180	110	120	64	130	360				
Outliers	0	0	0	0	0	0	0	0	1	1	1	1
Stragglers	0	0	0	0	0	0	0	0	0	0	0	0

## 2004-05: Total Sodium (%)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	26	26	27	26	26	26	26	26	27	26	27	27
Minimum i	0	0.028	0.003	0.036	0.100	0.078	0.005	0.019	0.029	0	0.017	0.071
Maximum i	0.050	0.078	0.082	0.105	0.211	0.235	0.100	0.178	0.086	0.028	0.220	0.120
Median i	0.005	0.042	0.011	0.083	0.136	0.144	0.012	0.023	0.038	0.004	0.022	0.083
Mean i	0.010	0.043	0.017	0.082	0.137	0.146	0.021	0.037	0.042	0.006	0.032	0.085
MAD i	0.002	0.004	0.002	0.006	0.008	0.010	0.003	0.003	0.005	0.001	0.002	0.003
IQR i	0.0045	0.0059	0.0034	0.0088	0.0119	0.0148	0.0083	0.0091	0.0105	0.0020	0.0056	0.0052
Robust CV% i	89	14	31	11	8.8	10	69	39	28	50	25	6.3
Median f	0.004	0.042	0.010	0.084	0.136	0.143	0.011	0.023	0.037	0.004	0.022	0.083
Mean f	0.004	0.041	0.010	0.084	0.137	0.143	0.012	0.023	0.038	0.004	0.022	0.083
MAD f	0.0010	0.0035	0.0012	0.0053	0.0060	0.0070	0.0012	0.0015	0.0030	0.0010	0.0018	0.0030
IQR f	0.0015	0.0052	0.0022	0.0082	0.0104	0.0122	0.0017	0.0022	0.0052	0.0013	0.0021	0.004
Robust CV% f	38	13	22	9.7	7.6	8.6	15	9.9	14	33	9.7	5.4
Outliers	5	2	6	2	2	5	6	5	3	7	6	4
Stragglers	1	0	1	1	1	0	2	2	1	0	0	0

## 2004-05: Total Sulfur (%)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
Minimum i	0.10	0.24	0.08	0.07	0.21	0.64	0.08	0.08	0.23	0.09	0.09	0.06
Maximum i	0.26	0.38	0.16	0.23	0.31	1.03	0.15	0.93	56.5	24.6	93.6	19.7
Median i	0.14	0.29	0.12	0.09	0.25	0.90	0.11	0.11	0.28	0.14	0.11	0.08
Mean i	0.14	0.29	0.12	0.09	0.24	0.89	0.11	0.15	2.54	1.12	3.85	0.87
MAD i	0.010	0.015	0.007	0.005	0.016	0.066	0.010	0.013	0.018	0.009	0.005	0.005
IQR i	0.0174	0.0234	0.0100	0.0093	0.0222	0.1180	0.0135	0.0193	0.0289	0.0178	0.0093	0.0074
Robust CV% i	13	8.2	8.5	11	9.1	13	12	17	10	13	8.5	8.8
Median f	0.14	0.28	0.12	0.08	0.25	0.90	0.11	0.11	0.28	0.14	0.11	0.08
Mean f	0.14	0.28	0.12	0.08	0.24	0.89	0.11	0.11	0.28	0.14	0.11	0.08
MAD f	0.009	0.015	0.006	0.006	0.015	0.066	0.010	0.010	0.015	0.004	0.005	0.003
IQR f	0.0145	0.0221	0.0096	0.0083	0.0208	0.1180	0.0135	0.0132	0.0250	0.0067	0.0048	0.0060
Robust CV% f	10	7.8	8.2	10	8.5	13	12	12	8.9	4.7	4.4	7.2
Outliers	2	1	4	4	1	0	0	2	2	4	4	3
Stragglers	1	0	0	0	0	0	0	0	1	4	0	1

## 2004-05: Total Zinc (mg/kg)

Statistical parameters	Plant sample identification and values											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
No of results	28	28	29	28	26	26	26	26	28	28	28	28
Minimum i	11.5	11.0	19.8	2.0	26	8.7	10	5.2	19.8	22.6	0.33	0.34
Maximum i	41.7	34.1	73.9	11	37	21	15	22	32	37	17.4	9.17
Median i	27	23	43	5.71	31.15	14.8	12	12	23.9	26.5	12.2	6.24
Mean i	26.4	23.1	43	5.94	31.9	15	12.2	12.4	24.3	27.1	12	6.2
MAD i	3.00	2.00	2.00	0.51	1.85	1.50	1.00	1.00	1.35	1.85	0.80	0.42
IQR i	3.74	2.61	3.34	1.09	2.41	2.41	1.48	0.964	2.09	3.37	1.19	0.654
Robust CV% i	14	11	7.8	19	7.7	16	12	8	8.8	13	9.7	10
Median f	27.0	23.0	43.0	5.7	31.2	14.6	12.0	12.0	23.7	26.1	12.2	6.2
Mean f	26.4	23.1	43.3	5.8	31.9	14.7	12.2	12.1	23.8	26.7	12.3	6.1
MAD f	2.50	1.85	2.00	0.40	1.85	1.40	1.00	1.00	1.20	1.60	0.80	0.31
IQR f	3.220	2.350	2.850	0.667	2.410	2.220	1.480	0.815	1.890	3.040	1.130	0.586
Robust CV% f	12	10	6.6	12	7.7	15	12	6.8	8	12	9.3	9.4
Outliers	2	2	7	5	0	3	0	3	1	1	4	4
Stragglers	0	0	0	0	0	0	0	0	1	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 grand median robust % CVs across the 12 samples, after the removal of "outliers" and "stragglers", ranged from 5.2 to 92.8%. This covered the 20 tests reported by a minimum of six laboratories (Si was excluded on this criterion). Table 4 provides the identity of the six best and six worst tests, with their corresponding robust % CVs. There were some "round-by-round" fluctuations in measurement performance by test, but always total C had lowest robust %CVs and Pb the highest.

Thirdly, the median robust CV across the 20 tests on a sample by sample basis ranged from 8.5% (ASP121) to 15.1% (APS81), with a grand median for the 12 samples of 9.8%. Based on the similarity of these CVs, no sample was outstandingly more difficult than others to analyse.

Table 4. The six best performed and worst performed plant chemical tests, based on grand median percent robust coefficients of variation after the removal of "outliers" and "stragglers".

<i>Best (Lowest Robust %CVs)</i>		<i>Worst (Highest Robust %CVs)</i>	
<i>Plant test</i>	<i>%CV</i>	<i>Plant test</i>	<i>%CV</i>
Carbon	5.2	Boron	16.8
Magnesium	6.2	Cadmium	18.9
Phosphorus	6.3	Selenium	29.2
Nitrogen	7.0	Aluminum	29.4
Potassium	7.7	Cobalt	40.3
Calcium	8.1	Lead	92.8

Finally, as an unannounced check on measurement performance over time, three of the samples were offered in more than one "round". Specifically, two samples in the August 2004 "round" were re-offered in April 2005, while one sample from the December 2004 "round" was re-offered in April 2005. Based on geometric means of median results after removal of "outliers" and following data transformation to reflect the proximity of each paired test result to unity, the two "round one" and "round three" geometric mean pairs (expressed as percentages) of the population of tests were each within 1.5 percentage points of each other. However, the "round two" and "round three" comparison was approximately 4.0 percentage points different ("round three values were lower on average"), particularly for Pb.



## Appendix 1: List of laboratories who participated in ASPAC's Plant ILPP in 2004-05

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## Appendix 2: Summary examples of homogeneity data and statistical assessments for plant samples used in ASPAC's Plant ILPP in 2004-05

Sample name		ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
Test Method		NIR	NIR	NIR	NIR	NIR	NIR	NIR	NIR	Dumas	Dumas	Dumas	Dumas
Analyte		Total P	Total P	Total P	Total P	Total N	Total N	Total N	Total N	Total N	Total N	Total N	Total N
Sample 1	Rep 1	0.20	0.23	0.13	0.14	2.29	3.13	1.11	1.69	2.78	2.12	1.45	1.01
	Rep 2	0.19	0.23	0.12	0.14	2.29	3.05	1.12	1.69	2.75	2.10	1.47	0.986
Sample 2	Rep 1	0.19	0.23	0.12	0.14	2.3	3.12	1.09	1.75	2.82	2.07	1.45	0.973
	Rep 2	0.19	0.23	0.13	0.15	2.31	3.08	1.08	1.70	2.76	2.09	1.43	1.00
Sample 3	Rep 1	0.20	0.23	0.13	0.14	2.35	3.12	1.11	1.74	2.69	2.08	1.45	0.992
	Rep 2	0.20	0.23	0.12	0.14	2.31	3.07	1.12	1.72	2.62	2.12	1.43	0.971
Sample 4	Rep 1	0.19	0.23	0.12	0.14	2.3	3.07	1.06	1.81	2.71	2.10	1.45	0.987
	Rep 2	0.19	0.24	0.13	0.14	2.33	3.09	1.13	1.73	2.74	2.08	1.43	0.998
Sample 5	Rep 1	0.19	0.24	0.12	0.14	2.31	2.98	1.11	1.67	2.83	2.10	1.43	0.969
	Rep 2	0.20	0.24	0.12	0.15	2.33	3.17	1.12	1.79	2.56	2.09	1.44	0.982
Sample 6	Rep 1	0.19	0.23	0.12	0.14	2.25	3.14	1.10	1.80	2.72	2.10	1.44	1.00
	Rep 2	0.20	0.23	0.13	0.15	2.25	3.12	1.14	1.76	2.81	2.08	1.43	0.985
Sample 7	Rep 1	0.20	0.22	0.13	0.15	2.31	3.07	1.12	1.74	2.70	2.04	1.44	0.991
	Rep 2	0.18	0.23	0.12	0.14	2.28	3.11	1.09	1.78	2.73	2.05	1.44	0.984
Sample 8	Rep 1	0.20	0.22	0.12	0.14	2.32	3.12	1.12	1.67	2.73	2.04	1.43	0.990
	Rep 2	0.20	0.23	0.12	0.15	2.25	2.98	1.11	1.66	2.64	2.10	1.44	1.011
Sample 9	Rep 1	0.20	0.22	0.12	0.15	2.29	3.1	1.1	1.72	2.69	2.12	1.48	0.980
	Rep 2	0.20	0.23	0.12	0.15	2.22	3.09	1.19	1.75	2.67	2.09	1.45	0.959
Sample 10	Rep 1	0.19	0.23	0.13	0.15	2.33	3.01	1.12	1.76	2.56	2.04	1.45	0.973
	Rep 2	0.19	0.22	0.13	0.15	2.28	3.09	1.12	1.74	2.74	2.07	1.45	0.974
Mean		0.195	0.230	0.124	0.145	2.295	3.086	1.113	1.734	2.712	2.083	1.444	0.986
Analytical SD		0.006	0.005	0.006	0.005	0.029	0.061	0.028	0.038	0.084	0.022	0.015	0.014
Sampling SD		0.001	0.004	0.002	0.001	0.017	0.036	0.012	0.023	*	0.014	*	*
SD of prof. data		0.012	0.015	0.012	0.010	0.156	0.208	0.089	0.082	0.089	0.082	0.074	0.052
Homogeneity index		0.11	0.23	0.18	0.11	0.11	0.17	0.13	0.28	*	0.18	*	*
Status		H	H	H	H	H	H	H	H		H		
F-statistic		1.10	1.98	0.67	1.09	1.70	0.30	0.64	1.75	0.68	2.09	0.73	0.92
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 critical		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

\* The estimate of SD for variation between samples within these batches is imprecise due to the magnitude of variation in test repeatability. In all cases, the total variation (from both repeatability and sample variation) is significantly less than the variation in proficiency results – ie. sample batches are fit for use in interlaboratory comparisons.

### 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. Also, the median ( $\mu$ ) is regarded as a good estimate of the true mean, while the MAD; ie. the median of the absolute deviations from the median, ( $\sigma$ ), is regarded as a good estimate of the standard deviation.

After tabulating the data with a separate column for each sample result and a separate row for each laboratory, calculations were applied iteratively. Each iteration operated at an action level of  $[(X - \mu) / \sigma]$  (called the “ASPAC Score” for convenience)  $> 2$ , where “X” is the value reported by the laboratory (one replicate assumed), “ $\mu$ ” is the median of the population of values, and “ $\sigma$ ” 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 (1) 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 #	Plant sample identification and values for 2004-05: Total Aluminum (mg/kg)											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L006									40.1	0.6	51.3	7.9 †
L008	4.8	18	394	1.8	256	3099	11	71 †	24	5.4	63	1.6
L009	7.3	22.6	374	2.45	156	2428 ††	35.7	67.4	10.6	0	44.6	0
L010									28.7	4.53	66.6	1.38
L011	13 ††	28	363	6.8 †	174	3080	28	60	34.7	18.5 ††	80.1	15.8 ††
L013									23	3.5	52	1.5
L016	3.8	20	374	1.1	190	3380	20.3	61.8	23	4.47	65.4	1.34
L018									42.1	11.8 †	78.1	12.5 ††
L019	38 ††	155 ††	411	26 ††					30.9	12.2 †	78.6	8.5 †
L022	5.5	26	399	2.5	154	2990	22.2	60.5	26.9	9	62.4	2.7
L023	4.53	27.3	428	0	181	3250	17	60	32	8.5	86	3.4
L026	5.5	21	431	1.5	216	3190	22	101 ††	144 ††	17 ††	136 ††	16.3 ††
L028	5	49 †	365	5 †	186	1730 ††	16	61	26.8	5	66.7	5
L030	0	46.4 †	315	0	118	2800	15.5	57.8	58.2 ††	2.63	58.9	0
L032	2.6	14	273 ††	1.1	215	3170	27	60	25.7	3.97	56	1.55
L034	6.7	19	396	2.4	132	3210	18	65	18.6	5.34	59.2	2.48
L036	4	23	351	1.2	153	3227	20	58	22	2.28	57	0.5
L037	11.5	24.8	397	1.34								
L040	11	30	313	10 ††	144	2985	21	57	20.4	3.3	49.5	0.9
L044	25 ††	77 ††	402	30 ††	183	3240	36	94 ††	56.5 ††	24.6 ††	93.6	19.7 ††
L046	11.1	29.8	332	10.5 ††								
L079	5.1	30	422	3.4	212	3600	21	50	19.2	0.3	62.4	0.1
L097	7	42	398	7.5 †	196	3600	31	75 †	50.8 †	5.83	76.4	4.93
L150			424									

**Plant sample identification and values for  
2004-05: Total Boron (mg/kg)**

Lab. Code #	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
	L005	44.6 ††	2.9 ††	51.2 ††	35.3 ††	61 ††	70	50 ††	59 ††	16.5	2.41	30.53
L006									25.9 ††	5.8 ††	38.4 ††	6.4
L008	3.7	16	14	2.2	25	63	2.5	26	16	3.2	27	2.5
L009	2.7	13.7	12	2.9	43.1 ††	68.2	26.7 ††	45.6 ††	14.6	2.16	23.5	2.15
L010	4	30 ††	15	14 ††					24.8 ††	2.43	34	2.93
L011	14 ††	17	17	4.2	17 ††	44	8.4 †	28	13.6	2.48	21.9	4.31
L013	7	21	18	11 ††	26	57	3	29	16	3	23	3.5
L016	2.5	16	13	2.5	23.5	57		27.9	15.9	2.92	27.8	2.64
L018	2.7	16	14	2.8	27	68	3.4	30	16.9	3	28.4	2.75
L019	13 ††	20	16	4	23	44.8	6.3	25.6	17.1	3.97	23.4	1.47
L022	3.3	16.8	14.2	2.8	23.1	53.1	3.25	27.1	17.7	2.9	28.6	2.9
L023	2.19	22.1	15.2	2.66	25	48		20	5 ††		16	
L026	2.6	16	13	2.3	26	66	3.5	29	18.8	5.7 ††	27.1	4.72
L028	5.4	19	17	5.2 †	23	23 ††	5.7	29	18.2	6 ††	20.8	4.87
L030	0.92	11.3	7.59	0.63 †	20.4 †	52.8	0.727	26.6	15.6	2.94	28.1	0.304
L032	2.4	13	10	1.8	23	50	2.7	25	14.4	3.02	23.1	3.05
L034	4.8	17	13	4.2	24	61	3.6	28	15.3	3.59	25.6	4.1
L036	2.8	15	14	3	24	55	2	25	24 ††	13 ††	33	9.6 ††
L037	14.7 ††	27.2 ††	22.7 ††	15.3 ††								
L040	5	14	16	7.9 ††	26	59	4.6	30	17.7	5.1	26.1	3.6
L044	37 ††	55 ††	52 ††	44 ††	17 ††	27 ††	12 ††	19 ††				
L046	6.45	15.8	14	2.82								
L064	5.41	13.2	11.4	4.85 †	28.2	68.7	7.26	25.2	14.4	1.23	27.1	3.49
L079					25	50	2.4	23	14	6.35 ††	26.3	7.2 ††
L080	16 ††	84 ††	32 ††	21 ††								
L084	3.65	12.8	12.9	2.7	26.5	63.3	7.4	23.8	16.7	6.9 ††	21.6	3.9
L097	2	15	12	3.1	17 ††	42	2.3	23	16.6	2.99	23.8	2.44
L100					25	58	3.2	27	14.9	2.36	24	1.97
L139					24	59	3.9	28	16	3.9	22	3.8
L150			16									

Lab. Code #	Plant sample identification and values for 2004-05: Total Cadmium (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	0.279 ††	0.291 ††	0.208 ††	0.156 ††								
L006									0.2 ††	0.2 ††	0.2 ††	0.33 ††
L008	0.021	0.075	0.06	0.088	0.084	0.21 †	0.12	0.01	0.067	0.007	0.01	0.076
L009	0.284 ††	0.056	0.016 †	0.024 †	0.354 ††	0.136	0.154	0.202 ††	1.12 ††	0.559 ††	1.09 ††	0.941 ††
L011	0.035 †	0.059	0.049	0.07	0.11	0.12	0.14	0.2 ††	0.034 ††	0.005	0.007	0.124 †
L016	0.007	0.069	0.048	0.075	0.088	0.145	0.116	0.011	0.065	0.007	0.008	0.085
L019									0.067	0.019 †	0.012	0.081
L023	0	0.065	0.041	0.071	0.086	0.14	0.1	0.008	0.06			0.07
L028	0.012	0.23 ††	0.05	0.09	0.074	0.14	0.099	0.005	0.068	0.005	0.016	0.076
L030	0.06 ††	0.199 ††	0.075 †	0.19 ††								
L032	0.007	0.054	0.038	0.066					0.0456 †	0.007	0.007	0.059
L036	0.011	0.074	0.045	0.079	0.11	0.175 †	0.125	0.01	0.062	0.011	0.011	0.071
L037	0.41 ††	3.5 ††	1.52 ††	0.29 ††								
L040	0.006	0.044	0.045	0.072	0.068	0.146	0.127	0.025	0.06	0.008	0.009	0.08
L044	0	0 ††	0 ††	0 ††	0.074	0.118	0.1	0.019	0.114 ††	0.1 ††	0.1 ††	0.179 ††
L046	0	0.009 †	0 ††	0.028 †								
L079	0.004	0.069	0.045	0.076	0.087	0.22 ††	0.11	0.006	0.076	0.011	0.011	0.082

Lab. Code #	Plant sample identification and values for 2004-05: Total Calcium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	0.0142 ††	0.402 ††	0.143 ††	0.011								
L005	0.09 ††	1.57 †	1.307 ††	0.032	0.9	2.4 †	0.2 ††	0.8	1.56 ††	0.050 ††	0.84 †	0.03 ††
L006									1.35	0.037	0.696	0.021
L008	0.035	1.26	0.482	0.022	0.944	3.29	1.64 ††	0.65	1.33	0.036	0.725	0.023
L009	0.048	1.21	0.456	0.032	0.914	3.1	0.195 ††	0.632	1.35	0.046	0.726	0.03 ††
L010	0.029	1.51	0.522	0.008 †					1.25	0.039	0.704	0.024
L011	0.389 ††	1.33	0.475	0.049 ††	0.762	2.66	0.149	0.659	1.38	0.041	0.734	0.027 †
L013	0.03	1.27	0.440	0.010 †	0.79	2.96	0.14	0.66	1.24	0.040	0.68	0.020
L016	0.035	1.3	0.446	0.020	0.893	3.36	0.155	0.766	1.25	0.040	0.736	0.023
L018	0.042	1.36	0.483	0.023	0.928	3.63 †	0.173	0.758	1.29	0.037	0.722	0.022
L019	0.045	1.213	0.453	0.022	0.77	3.06	0.127	0.66	1.26	0.045	0.704	0.022



Lab. Code #	Plant sample identification and values for 2004-05: Total Calcium (%)																	
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)									
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44						
L022	0.038	1.28	0.490	0.023	0.876	3.06	0.16	0.754	1.35	0.038	0.76	0.022						
L023	0.037	1.32	0.490	0.022	0.821	3	0.139	0.699	1.3	0.040	0.72	0.020						
L026	0.034	1.22	0.432	0.020	0.853	3.16	0.142	0.734	1.24	0.034	0.702	0.020						
L028	0.039	1.34	0.488	0.024	0.922	1.87	††	0.14	0.719	1.36	0.039	0.705	0.023					
L030	0.031	1.04	†	0.387	†	0.017	0.864	3.06	0.142	0.716	1.21	0.033	0.687	0.022				
L032	0.029	1.03	†	0.358	††	0.017	0.857	3.02	0.149	0.742	1.12	††	0.037	0.652	0.022			
L034	0.041	1.39	†	0.492	0.026	0.946	3.34	0.174	0.813	1.38	††	0.041	0.784	0.024				
L036	0.035	1.28	0.455	0.021	0.859	3.38	0.149	0.719	1.29	0.034	0.688	0.021						
L037	0.039	1.45	0.481	0.023														
L040	0.030	1.19	0.395	†	0.018	0.804	2.72	0.143	0.67	1.18	0.032	0.66	0.02					
L042	0.034	1.33	0.472	0.017	0.807	3	0.141	0.658	1.41	0.039	0.762	0.022						
L044	0.037	1.34	0.472	0.027	0.829	3.08	0.152	0.683	1.57	††	0.044	0.891	††	0.033	††			
L046	0.034	1.29	0.409	0.021														
L047	0.030	1.22	0.890	††	0.040	††			1.4	0.05	††	0.9	††	0.03	††			
L064	0.025	1.45	0.460	0.047	††	0.84	4.76	††	0.11	††	0.893	††	1.365	0.0562	††	0.784	0.0495	††
L079	0.040	1.40	0.460	0.025	0.917	3.38	0.173	0.712	1.35	0.045	0.709	0.026						
L080	0.420	††	1.54	1.050	††	0.120	††	0.698	2.94	0.054	††	0.739						
L084	0.049	1.34	0.468	0.018	0.915	3.21	0.156	0.728	1.32	0.036	0.67	0.024						
L097	0.033	1.30	0.465	0.022	0.922	3.42	0.17	0.741	1.36	0.039	0.743	0.024						
L100					0.88	3.34	0.14	0.72	1.28	0.0338	0.673	0.0206						
L139					0.859	3.03	0.157	0.708	1.31	0.041	0.749	0.023						
L150			0.467															

Lab. Code #	Plant sample identification and values for 2004-05: Total Carbon (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	42.18	36.72	††	46.27	43.17							
L010	46.63	47.18		52.44	45.28				43.3	42	51.8	40.6
L013	45.2	46.1	52	43.9	45.6	39.5	46.2	54.1	43.3	44.6	53.6	43
L019	45	43.9	49.6	42.8	41.75	35.5	42	53	41	41	50	39
L023	45.1	45.1	51.4	43.6	46	41	47	54	43.8	43.1	51.6	42.2
L028	43.9	44.5	49.5	42.6	44.1	38.5	44.1	52	44.1	42.7	51.4	41.6
L030	40.1	41.3	46.1	38.8	41.6	35.8	42.3	50.3	42.1	40.3	50	39

Lab. Code #	Plant sample identification and values for 2004-05: Total Carbon (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L032	40.28	41.12	46.12	39.11	41.66	35.71	41.88	49.67	41.4	40.1	49.6	38.8
L036	43.7	44.1	48.2	42.7	44.5	38.9	44.8	52.9	44	43.4	52.6	42.4
L037	44.5	45.3	50.8	43.3								
L040	42.4	43.6	48.9	41.1	43.6	37.5	43.98	51.88	42.7	41.9	50.7	40.8
L042	44.6	45.2	50.4	43.1	44.7	39	45.1	53.3	44	42.7	52.7	41
L046	40.2	41.4	46.3	38.5								
L079	43.2	43.8	49.2	41.6	45.6	39.8	45.7	53.9	47.5 ††	46.9 ††	56.2	45.1
L150			51.6									

Lab. Code #	Plant sample identification and values for 2004-05: Total Chloride (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L005					0.7	1.6	0.5	0.5 ††	0.65	0.110	0.490 ††	0.080 ††
L009	0.27 ††	0.892 ††	0.243 †	0.156 ††	0.842 ††	1.74	0.531	0.433 ††	1.05 ††	0.299 ††	0.333 ††	0.452 ††
L010	0.004 ††	0.594	0.149	0.063					0.585	0.074	0.203	0.112 ††
L011					0.59	1.45	0.41	0.18	0.522	0.096	0.121	0.082 ††
L013	0.15	0.71 †	0.27 ††	0.06	0.74	1.61	0.54	0.32	0.65	0.210 ††	0.270	0.050
L018	0.102	0.598	0.123	0.05	0.652	1.62	0.446	0.18	0.59	0.094	0.183	0.050
L022	0.085	0.56	0.14	0.05	0.66	1.55	0.45	0.24	0.575	0.110	0.256	0.060 †
L023	0.155 †	0.59	0.147	0.087	0.64	1.5	0.43	0.14	0.56	0.140	0.150	0.090 ††
L026	0.176 ††	0.6	0.116	0.028	0.618	1.67	0.4	0.248	0.569	0.094	0.196	0.049
L030	0.089	0.518	0.105	0.039	0.55	1.39	0.379	0.166	0.457	0.083	0.103	0.058 †
L032	0.108	0.546	0.106	0.046	0.598	1.44	0.432	0.203	0.543	0.079	0.184	0.044 †
L034	0.0953	0.586	0.118	0.056	0.63	1.55	0.435	0.175	0.587	0.088	0.163	0.049
L036	0.097	0.614	0.153	0.048	0.66	1.52	0.464	0.251	0.596	0.095	0.253	0.046
L037	0.082	0.8 ††	0.143	0.041								
L040					0.54	1.45	0.325 ††	0.075	0.51	0.11	0.15	0.05
L064	0.119	0.633	0.107	0.087	0.714	1.68	0.582 ††	0.23	0.681	0.0375 †	0.256	0.079 ††
L097	0.096	0.564	0.177	0.05	0.632	1.54	0.43	0.178	0.565	0.093	0.174	0.048
L100					0.65	1.56	0.47	0.19	0.536	0.092	0.165	0.051
L139					0.675	1.46	0.473	0.394 ††				

Lab. Code #	Plant sample identification and values for 2004-05: Total Cobalt (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L008	0.023	0.37	0.077	0.51 ††	0.726	0.82	0.071	0.039	0.33	0.019	0.035	0.04
L009	0.06 ††	1.59 ††	0.278 ††	0.06	0.88	1.94 ††	0.005	0.034	0.67 ††	0	0.34 ††	0
L013	0.03	0.28	0.09	0.03	0.31 †	1.1	0.050	0.03	0.39	0.03	0.09 †	0.06
L016	0.016	0.314	0.06	0.039	0.669	0.903	0.067	0.032	0.332	0.018	0.026	0.047
L019					0.55	0.72	0.01	0.18 ††	0.197	0.013	0.018	0.025
L022	0.03	0.315	0.09	0.06	0.52	0.74	0.055	0.05	0.34	0.04	0.052	0.055
L023	0	0 ††	0 ††	0								
L030	0.059 ††	0.554 ††	0.112	0.126 †								
L032	0.02	0.259	0.056	0.04					0.165	0.014	0.024	0.039
L034	0.0295	0.295	0.080	0.064	0.519	0.722	0.042	0.046	0.263	0.042	0.045	0.07
L036	0.019	0.265	0.047	0.028	0.629	0.956	0.042	0.04				
L037	0.18 ††	1.53 ††	0.559 ††	0.34 ††								
L040	0.012	0.27	0.055	0.371 ††	0.587	0.708	0.066	0.03	0.28	0.004	0.02	0.03
L044	0.016	0.184	0.075	0.14 †	0.277 ††	0.45	0.013	0.006	0.469	0.4 ††	0.4 ††	0.4 ††
L079	0.015	0.341	0.064	0.038	0.644	0.92	0.063	0.043	0.375	0.021	0.041 ††	0.048
L097	0.017	0.332	0.07	0.046	0.614	0.843	0.06	0.027	0.329	0.016	0.021	0.041
L139					0.56	0.519	0.1	0.1 ††	0.318	0	0	0.025

Lab. Code #	Plant sample identification and values for 2004-05: Total Copper (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	2.5 †	2.3 ††	2 †	2								
L005	10.8 ††	7.3 ††	5.8 ††	1.2 ††	6	3	4 ††	5	6.72 ††	3.89	4.37	3.63 ††
L008	3.8	4.8	3.3	2.5	8.1	4.5	2.16	4.2	4.8	3.7	4.2	2.45
L009	3.19	4.97	2.61	2.08	4.24 ††	1.15 ††	3.96 ††	1.32 ††	8.02 ††	6.82 ††	7.74 ††	6.2 ††
L010	4.7 †	6.3 †	4	3.3 †					4.77	5.58 ††	4.07	2.6
L011	5.2 †	4.9	4.4 †	2.9	7.7	4.1	1.9	4.1	4.7	3.56	4.2	2.58
L013	3.6	5.1	3.5	2.7	8.4	4.5	2.1	4.6	4.7	3.5	3.9	2.7
L016	3.8	4.6	2.9	2.4	7.83	4.01	1.93	4.25	4.96	4.25	4.4	2.8
L018	4.1	5.1	3.4	2.7	9.2	5.7	2.4	4.8	5.46	4.16	4.58	2.94
L019	6 ††	9.5 ††	5.5 ††	8 ††	8.5	4.25	1.25 †	4.5	6.61 †	4.74	4.64	2.44
L022	3.75	4.95	3.5	2.62	7.75	7.4 ††	1.9	4.3	5.2	3.73	4.32	2.68
L023	3.49	5.01	3.13	2.4	7.6	3.7	2.1	4.4	5.1	4.1	4.1	2.6

Lab. Code #	Plant sample identification and values for 2004-05: Total Copper (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L026	3.7	4.8	3.2	2.4	6.8	4	1.6	1.5 ††	4.89	3.8	1.22 ††	2.61
L028	3.6	5.5	3.5	2.8	9.4	3.1	2.3	4.7	6.05	4.78	4.81	3.28
L030	2.06 ††	3.08 ††	2.61	1.79 †	6.76	3.62	1.24 †	3.54				
L032	3.2	3.7 †	2.7	2.2	7.9	4.1	1.9	4.1	4.41	3.1	3.69	2.11
L034	3.4	4.7	3.1	2.5	7.3	3.6	2	4.2	4.5	3.73	3.95	2.57
L036	3.6	4.6	3.3	2.5	7.8	3.9	1.9	4.1	5.4	3.5	4.3	3.8 ††
L037	4.01	6.03 †	3.96	3.28 †								
L040	5.6 ††	6.9 ††	6.1 ††	4.3 ††	7.6	3.7	1.8	4.2	4.19	3.28	3.64	2.29
L042					8.4	5.2	2.6	5.3 †	5.9	3.9	5.2	2.9
L044	7.6 ††	8.1 ††	7.8 ††	7.5 ††	9.67	4.9	1.96	4.11	1.82 ††	0.89 ††	0.537 ††	0.2 ††
L046	3.49	4.24	3.07	2.63								
L047	3.1	3.98	2.54	1.15 ††					5.7	5.3 †	4	2.7
L064	4.57 †	4.05	4.67 †	2.61	10.9 ††	7.5 ††	6.33 ††	3.58	5.34	2.74	4.65	2.52
L079	3.6	4.8	3	2.4	8	5.3	2.2	4.1	5.39	4.36	4.34	2.84
L080	8 ††	7 ††	4	3	8.2	5	2	4.7				
L084	3.54	4.81	3.2	2.43	7.2	4.35	1.76	4	5.4	3.95	4.32	2.79
L097	4.1	5.2	3.3	2.5	8.8	4.6	2.7 †	5.4 †	5.16	3.89	4.62	3.09
L100					8.8	6.4 †	2.9 ††	6.1 ††	4.77	4.09	4.21	2.88
L139					7.1	2.7	1.6	2.4 ††	4.7	3.5	2.2 ††	2.4
L150			2.9									

Lab. Code #	Plant sample identification and values for 2004-05: Total Iron (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L005	54.4 ††	82.2	251 ††	7.8 †	233	2677	53	62	78	32.99	144 ††	14.9
L006									61.5	30.9	45.3	16
L008	28	62	118	14	265	3750	42	48	69	30	60	14
L009	50.9 ††	92.3 †	133	28.2 ††	337 ††	5602 ††	63.1	81.8 ††	240 ††	71.8 ††	105 ††	52 ††
L010	33	72	122	18					62.9	37.6	56.3	13.9
L011	47 ††	89	134	32 ††	240	3170	67	71	87.4	43.4	73.6 †	21.4
L013	32	74	112	17	242	3722	52	76	68	31	55	16
L016	30	63	130	13	230	3570	46.3	59.7	63.2	32.2	56.2	15
L018	31	71	122	15	283	5260 ††	65	68	76.8	34.6	67.2	24.7 †

Lab. Code #	Plant sample identification and values for 2004-05: Total Iron (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L019	29	55	81	15	183.3	3175	46	61	53.5	26.5	48.5	9.53
L022	31	70.3	111	14	216	3214	44.9	59.8	72	31	61	16
L023	28.7	68.5	113	13.9	221	3680	42	53	74	34	60	18
L026	31	60	116	17	249	4160	43	63	60.7	27.1	51.7	12.8
L028	29	77	110	30 ††	257	1940 ††	50	61	64	36.8	60	23
L030	39.5 †	79.5	96.9	21.2 †	183	3260	28.4	49.5	62.9	27.4	51.3	12.3
L032	27	64	96	14	234	3580	47	68	64.8	30.9	57.8	17.8
L034	24	58	113	13	188	3260	34	54	55.9	25.2	47.8	12.2
L036	27	60	94	11	260	3683	48	58	59	28	56	13
L037	29.5	73.4	106	15.3								
L040	25	60	103	11	240	2810	42	55	55.3	26	53.1	11.2
L042					177	2426 †	37	52	71	45 †	66	12
L044	24	64	162 ††	14	211	3360	46	59	72.4	31.5	65.4	17.2
L046	32.1	62.9	91.1	15.4								
L047	22	49	93	8.23 †					153 ††	134 ††	166 ††	119 ††
L064	55.5 ††	79.6	110	22.5 †	372 ††	2211 ††	64.5	54.1	112 ††	19.1	57.5	16.7
L079	25	105 ††	95	13	265	3590	57	77	157 ††	34.3	110 ††	18.5
L080	65 ††	72	104	16	229	3304	149 ††	78				
L084	29	63.5	114	14.9	206	3570	44.9	55.6	72.2	29.8	60.4	15.1
L097	33	68	120	17	247	4100	61	59	72.6	31.9	56.7	15.4
L100					222	3763	37	57	63.1	26.8	47.4	14.5
L139					158	1434 ††	35	30 ††				
L150			110									

Lab. Code #	Plant sample identification and values for 2004-05: Total Lead (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	2.1 ††	2.5 ††	2.8 ††	2.6 ††								
L008	0.092	0.168	0.21	0.084	0.997	0.932	0.066	0.6	0.106	0.16	0.2	0.142
L009	0.941 ††	0.145	0.189	0.274 ††	1.65	0.994	0.361 ††	0.712	0	3.16 ††	3.16 ††	2.63 ††
L011	0.105	0.115	0.076	0.094								
L016	0.057	0.189	0.166	0.02	1.51	0.589	0.071	0.405	0.184	0.058	0.371	0.039
L019	2.25 ††	0.9 ††	0.38	0.2					0.147	0.096	0.243	0.1

Lab. Code #	Plant sample identification and values for 2004-05: Total Lead (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L023	0	0	0	0								
L028	0.04	0.15	0.14	0.04	1.2	0.82	0.04	0.082	0.04	0.04	0.04	0.04
L030	0.031	0.083	0.152	0.034								
L032	0.131	0.118	0.142	0.125					0.049	0.011	0.046	0.024
L036	0.016	0.115	0.089	0	1.2	1.2	0.001	0.289	0.074	0.078	0.205	0.06
L037	0.047	0.513 ††	0.212	0.04								
L040									0.07	0.015	0.05	0.005
L044	0.182	0.22	0	0.356 ††	0.9	0.279	0.259 ††	0.114	1 ††	1 ††	1.14 ††	1 ††
L046	0	0.0162	0.045	0								
L079	0.024	0.073	0.123	0.004	0.95	0.84	0.08	0.06	0.071	0.037	0.077	0.008

Lab. Code #	Plant sample identification and values for 2004-05: Total Magnesium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	0.094	0.172 ††	0.118 ††	0.034 †								
L005	0.38 ††	0.266 †	0.664 ††	0.128 ††	0.2	0.2 ††	0.1	0.1	0.26 †	0.12	0.12	0.05 ††
L006									0.236	0.11	0.106	0.04
L008	0.109	0.236	0.187	0.039	0.261	0.315	0.112	0.877 ††	0.227	0.11	0.106	0.04
L009	0.102	0.219	0.167	0.046 ††	0.212	0.28	0.091	0.085 †	0.222	0.098	0.099	0.037
L010	0.106	0.253	0.192	0.025 ††					0.212	0.106	0.103	0.04
L011	0.095	0.212	0.167	0.036	0.21	0.28	0.095	0.11	0.232	0.107	0.108	0.040
L013	0.09	0.22	0.18	0.04	0.21	0.29	0.09	0.1	0.22	0.1	0.09	0.04
L016	0.11	0.22	0.173	0.038	0.222	0.304	0.097	0.107	0.223	0.125	0.107	0.042
L018	0.109	0.235	0.186	0.041	0.237	0.334	0.104	0.109	0.225	0.105	0.105	0.041
L019	0.101	0.205	0.165	0.04	0.195	0.278	0.08	0.08 ††	0.236	0.128	0.116	0.04
L022	0.109	0.223	0.188	0.04	0.222	0.286	0.096	0.107	0.227	0.105	0.107	0.039
L023	0.102	0.229	0.19	0.039	0.208	0.281	0.089	0.098	0.23	0.11	0.1	0.04
L026	0.114	0.229	0.185	0.040	0.224	0.299	0.091	0.109	0.218	0.103	0.104	0.039
L028	0.101	0.224	0.173	0.039	0.236	0.152 ††	0.091	0.104	0.238	0.112	0.1	0.406 ††
L030	0.137 ††	0.292 ††	0.223 ††	0.046 ††	0.208	0.28	0.081	0.101	0.19 ††	0.1	0.091	0.033 ††
L032	0.084 †	0.175 ††	0.139 ††	0.031 ††	0.21	0.268	0.092	0.104	0.196 †	0.104	0.099	0.038
L034	0.112	0.233	0.184	0.041	0.236	0.31	0.105	0.112	0.234	0.113	0.108	0.042
L036	0.105	0.224	0.18	0.037	0.223	0.275	0.102	0.1	0.215	0.101	0.096	0.037

Lab. Code #	Plant sample identification and values for 2004-05: Total Magnesium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L037	0.109	0.244	0.187	0.043								
L040	0.09	0.201	0.164	0.033 ††	0.202	0.261	0.092	0.095	0.191 ††	0.094	0.085 ††	0.033 ††
L042	0.117	0.22	0.179	0.04	0.226	0.308	0.097	0.103	0.243	0.103	0.105	0.04
L044	0.096	0.221	0.177	0.037	0.202	0.278	0.09	0.095	0.467 ††	0.107	0.113	0.048 ††
L046	0.104	0.206	0.165	0.0353								
L047	0.06 ††	3.1 ††	0.16	0.02 ††					0.18 ††	0.09	0.1	0.04
L064	0.113	0.237	0.178	0.045 †	0.251	0.341	0.101	0.108	0.259 †	0.113	0.121	0.045 †
L079	0.111	0.246	0.189	0.041	0.238	0.324	0.102	0.104	0.239	0.116	0.108	0.042
L080	0.05 ††	0.2	0.21 †	0.04	0.287 ††	0.63 ††	0.088	0.19 ††				
L084	0.105	0.226	0.185	0.038	0.227	0.314	0.085	0.091	0.232	0.101	0.096	0.038
L097	0.104	0.232	0.189	0.04	0.238	0.324	0.106	0.11	0.233	0.108	0.103	0.041
L100					0.23	0.31	0.1	0.1	0.211	0.0976	0.0945	0.036
L139					0.217	0.299	0.097	0.07 ††	0.222	0.114	0.069 ††	0.039
L150			0.19									

Lab. Code #	Plant sample identification and values for 2004-05: Total Manganese (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L005	55.2 ††	68.8	318.9 ††	2.7	118	266 †	91	1604	73.8	29.9	1688	3.92
L006									57.6	21.6	1580	6.49 ††
L008	25	55	139	3.8	126	366	82	1328 †	60	27	1570	3.5
L009	20.1 ††	58.1	129	1.72 †	137	426	90.4	1755	70.2	30	1736	10.5 ††
L010	28	71	141	3.2					56.5	26	1461	4.66
L011	26	64	135	4.5	120	333	80	1601	62.7	27.6	1750	3.83
L013	23	60	125	1 ††	125	374	78	1618	60	26	1612	3.3
L016	27	60	133	3.4	129	373	86.8	1700	60.3	30.7	1680	3.76
L018	28	65	146	3.9	149 ††	450 ††	100 ††	1840	65.5	28.3	1737	7.1 ††
L019	25	52	126	2.5	114.5	321.5	73	1288 †	56.5	26	1562	3.54
L022	25.8	60.8	142	3.9	121	337	84.1	1598	63	25.9	1618	3.65
L023	26.4	65.7	150	3.44	114	342	75	1490	65	28	1500	38 ††
L026	26	61	134	3.6	131	399	82	1770	57.6	24.8	1520	3.51
L028	31 ††	66	136	21 ††	135	176 ††	79	1530	62.7	27.9	1650	3.75
L030	23.3	51.4	122	2.95	115	356	75.8	1730	61.9	27.7	1700	3.78

Lab. Code #	Plant sample identification and values for 2004-05: Total Manganese (mg/kg)												
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)				
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44	
L032	21 ††	49	107 ††	2.8	118	328	78	1660	51.6	21	1400	2.98	
L034	26	58	127	3.7	116	330	79	1560	54.9	23.8	1440	3.89	
L036	26	60	135	3.4	126	378	81	1626	65	29	1649	5.4 †	
L037	25.9	69	136	3.48									
L040	22 †	56	129	2.9	117	328	81	1389	50.7	24.1	1630	2.73	
L042					123	354	84	1003 ††	66	23	1581	4.5	
L044	24	60	131	3.4	112	331	76.7	1430	68.1	29.9	1830	6.06 †	
L046	25.4	55.4	119	3.29									
L047	31 ††	71	159	2.57					50.5	25.4	1397	4.65	
L064	19.2 ††	61.2	142	3.34	130	392	87.5	1632	50.4	30.9	1579	9.9 ††	
L079	27	68	139	4	132	396	80	1640	65.8	28.1	1640	5.61 †	
L080	24	63	152	4	125	334	80	1588					
L084	25.7	60	135	3.4	116	332	77.4	1580	65.5	25.6	1590	3.5	
L097	25	63	136	3.3	131	387	90	1630	63.5	26.6	1614	6.75 ††	
L100					121	359	74	1878 †	57.7	23.7	1372	3.46	
L139					118	263 †	84	220 ††	63	31	273 ††	4.1	
L150			140										

Lab. Code #	Plant sample identification and values for 2004-05: Total Molybdenum (mg/kg)												
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)				
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44	
L008	0.529	0.601	0.155	0.058	0.616	18.5	0.502	0.066	0.578	0.495	0.057	0.061	
L009	0.741	1.27 ††	0.241 †	0.044	0.863 ††	21.5	0.764	0.224 ††					
L011	0.568	0.857 †	0.237 †	0.17 ††	0.55	18	0.59	21 ††	0.693	0.483		0.055	
L013	0.35	0.34	0.04	0.06	0.3 ††	19	0.29	0.01	0.6	0.55	0.02	0.04	
L016	0.462	0.538	0.038	0.043	0.719	18.6	0.522	0.023	0.585	0.516	0.02	0.051	
L019	1.5 ††	1.2 ††	0.4 ††	0.3 ††	0.61	17.49	0.49	0.12	0.423	0.453	0.076	0.056	
L022	0.47	0.565	0.09	0.07	0.56	17.96	0.315	0.06	0.56	0.5	0.05	0.07	
L023	0 ††	0 ††	0	0									
L030	0.894 ††	0.656	0.073	0.198 ††									
L032	0.36	0.51	0.06	0.06					0.488	0.356	0.022	0.042	
L034	0.55	0.557	0.152	0.095	0.962 ††	19	0.761	0.816 ††	1.09 ††	0.967 ††	0.744 ††	0.449 ††	
L036	0.492	0.529	0.066	0.046	0.556	20	0.495	0.04	0.587	0.539	0.048	0.098	



Lab. Code #	Plant sample identification and values for 2004-05: Total Molybdenum (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L037	0.693	1.34 ††	0.429 ††	0.064								
L040	0.415	0.55	0.091	0.403 ††	0.53	18	0.498	0.033	0.560	0.440	0.045	0.165 ††
L044	0.645	0.694	0	0.188 ††	0.084 ††	0.925 ††	0.127	0.072	1 ††	1.12 ††	1.12 ††	1 ††
L046	0.578	0.466	0.018	0.086								
L079	0.52	0.63	0.06	0.06	0.65	22 †	0.68	0.05	0.51	0.424	0.024	0.035
L097	0.474	0.609	0.039	0.044	0.603	21	0.373	0.04	0.613	0.498	0.012	0.045
L139					0.32 †	16	0.28	0.05	0.40	0.35	0	0 †

Lab. Code #	Plant sample identification and values for 2004-05: Total Nitrogen (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	1.86	2.42	1.14	0.89								
L005					2.4	3.2	1.2	1.5	3.2 ††	2	1.3	0.9
L006									2.84	1.95	1.36	0.91
L009	3.27 ††	4.74 ††	1.59 ††	1.1	1.57 ††	1.7 ††	0.50 ††	0.86 ††	2.72	2.09	1.47	0.56 ††
L010	2.12	2.74	1.28	1.03					2.63	1.94	1.41	0.95
L011	1.95	2.76	1.17	0.95	2.34	2.48	1.6 ††	1.34	2.79	1.92	1.38	0.92
L013	2.12	2.85	1.26	1.02	2.35	2.76	1.14	1.49	2.85	2.03	1.44	0.97
L016	2.08	2.64	1.18	0.98	2.34	2.69	1.15	1.47	2.78	2.14	1.49	1.02
L018	2.17	3.03	1.32	1.1	2.35	2.8	1.1	1.5	2.98	2.12	1.52	1.02
L019	2.1	2.92	1.28	1.04	2.12	2.45	1.06	1.38	2.78	1.87	1.32	0.89
L022	1.94	2.83	1.22	0.94	2.25	2.51	1.09	1.4	2.79	1.94	1.44	0.95
L023	2.08	2.85	1.27	1.05	2.4	2.8	1.2	1.5	2.8	1.98	1.35	0.88
L026	2.13	2.68	1.24	1.04	2.15	2.46	1.05	1.43	2.93	2.07	1.5	0.96
L028	2.12	2.93	1.23	1.01	2.35	2.76	1.14	1.45	2.78	2.04	1.39	0.97
L030	1.92	2.63	1.15	0.92	2.15	2.45	1.1	1.35	2.61	1.9	1.36	0.93
L032	1.96	2.67	1.18	0.95	2.23	2.56	1.16	1.41	2.86	1.93	1.38	0.93
L034	1.94	2.58	1.12	0.94	2.08	2.4	1.01	1.3	2.79	1.99	1.37	0.94
L035	1.89	2.59	1.11	0.89	2.36	2.69	1.22	1.5	2.77	1.98	1.48	1.00
L036	2	2.61	1.18	0.99	2.12	2.53	1.04	1.39	2.65	2.04	1.38	0.97
L037	2.1	2.92	1.25	1.01								
L040	2.01	2.89	1.23	0.99	2.2	2.51	1.11	1.4	3.08 †	2.1	1.47	1
L041	2.32	3.31 ††	1.38	1.11					2.47 ††	1.81	1.34	0.98

Lab. Code #	Plant sample identification and values for 2004-05: Total Nitrogen (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L042	2.12	3	1.26	1.02	2.31	2.7	1.15	1.47	2.91	1.99	1.45	0.96
L044	1.96	2.61	1.16	0.93	2.04	2.4	0.99	1.33				
L046	1.77	2.61	1.03	0.76 ††								
L047	1.75	1.18 ††	1.15	0.91					2.31 ††	2.44 ††	1.28	0.91
L064	1.86	2.64	1.1	0.90	2.48	2.81	0.93	1.47	2.9	1.98	1.38	1
L079	2.04	2.79	1.21	0.93	2.49	2.87	1.3	1.61	2.97	2.17	1.52	1.02
L084	1.91	2.58	1.16	0.94	2.16	2.66	1.11	1.38	2.57	2.01	1.39	0.93
L097	2.13	3.41 ††	1.28	1.04	2.44	2.79	1.2	1.54	2.8	2.18	1.6 ††	1.11 ††
L100					2.48	2.84	1.35	1.58	2.9	2	1.5	1.01
L139					2.31	2.62	1.22	1.5	2.8	1.94	1.43	0.99
L141									2.88	2.06	1.36	0.94
L150			1.17									

Lab. Code #	Plant sample identification and values for 2004-05: Total Phosphorus (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	0.187	0.19 ††	0.09 ††	0.14								
L005	0.275 ††	0.256	0.18 ††	0.19 ††	0.26	0.23	0.14	0.10	0.27	0.22	0.10 †	0.17 ††
L006									0.35 ††	0.29 ††	0.10	0.17 †
L008	0.202	0.25	0.13	0.15	0.28	0.32	0.13	0.80 ††	0.25	0.20	0.09	0.15
L009	0.205	0.252	0.14	0.16	0.28	0.33	0.13	0.09	0.26	0.21	0.10 †	0.16 †
L010	0.185	0.247	0.13	0.15					0.24	0.20	0.09	0.16
L011	0.184	0.224	0.12	0.14	0.28	0.30	0.13	0.09	0.25	0.21	0.09	0.15
L013	0.18	0.23	0.13	0.15	0.27	0.43 ††	0.12	0.13 ††	0.25	0.21	0.16 ††	0.15
L016	0.206	0.237	0.12	0.15	0.28	0.30	0.13	0.09	0.25	0.23	0.09	0.16
L018	0.202	0.244	0.13	0.15	0.28	0.33	0.13	0.09	0.24	0.20	0.09	0.15
L019	0.2	0.23	0.12	0.16	0.24	0.27	0.11 †	0.08	0.22	0.18	0.09	0.15
L022	0.198	0.241	0.13	0.15	0.27	0.29	0.13	0.09	0.25	0.20	0.09	0.15
L023	0.203	0.253	0.14	0.16	0.26	0.30	0.13	0.09	0.27	0.22	0.10 †	0.15
L026	0.219	0.259	0.14	0.16	0.28	0.32	0.13	0.09	0.25	0.19	0.09	0.15
L028	0.199	0.243	0.13	0.16	0.28	0.35	0.13	0.10	0.24	0.20	0.09	0.15
L030	0.238 †	0.316 ††	0.15	0.17	0.26	0.28	0.12	0.09	0.24	0.19	0.09	0.15
L032	0.162 †	0.201	0.10	0.12 ††	0.26	0.27	0.12	0.09	0.21 ††	0.16 ††	0.07 ††	0.12 ††

Lab. Code #	Plant sample identification and values for 2004-05: Total Phosphorus (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L034	0.217	0.255	0.13	0.16	0.28	0.31	0.14	0.09	0.25	0.20	0.09	0.15
L036	0.209	0.25	0.13	0.16	0.28	0.31	0.14	0.09	0.27	0.24	0.09	0.17 ††
L037	0.191	0.247	0.13	0.15								
L040	0.176	0.229	0.12	0.14	0.27	0.30	0.12	0.09	0.24	0.19	0.09	0.15
L042	0.217	0.247	0.13	0.16	0.27	0.31	0.13	0.09	0.26	0.22	0.09	0.16
L044	0.174	0.231	0.12	0.14	0.24	0.28	0.12	0.08	0.28 †	0.21	0.12 ††	0.20 ††
L046	0.205	0.248	0.12	0.15								
L047	0.19	0.23	0.14	0.14					0.22	0.24 ††	0.12 ††	0.15
L064	0.202	0.236	0.14	0.15	0.27	0.28	0.12	0.08	0.24	0.21	0.10 †	0.16
L079	0.18	0.292 ††	0.12	0.14	0.28	0.33	0.12	0.08	0.25	0.20	0.09	0.15
L080	0.26 ††	0.23	0.15	0.14	0.29	0.32	0.19 ††	0.15 ††				
L084	0.194	0.23	0.12	0.15	0.24	0.29	0.11	0.08	0.24	0.19	0.08 †	0.14 †
L097	0.199	0.24	0.13	0.15	0.28	0.33	0.13	0.09	0.26	0.20	0.09	0.15
L100					0.27	0.30	0.13	0.09	0.23	0.18	0.08 †	0.13 ††
L139					0.27	0.33	0.14	0.09	0.25	0.21	0.09	0.15
L150			0.14									

Lab. Code #	Plant sample identification and values for 2004-05: Total Potassium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	0.2 ††	1.63 ††	0.29 ††	0.32 ††								
L005	3.8 ††	2.4	6.30 ††	3.20 ††	1.80	2.00 †	0.90	0.70	2.90	0.43	0.81	0.59
L006									2.32	0.40	0.78	0.55
L008	0.343	2.55	0.66	0.54	2.08	2.59	1.20	0.69	2.54	0.35	0.76	0.54
L009	0.31	2.36	0.56	0.51	1.86	2.22	0.94	0.66	2.43	0.37	0.74	0.50
L010	0.369	2.76	0.70	0.57					1.99	0.31	0.65	0.46
L011	0.329	2.15	0.59	0.51	1.93	2.42	0.95	0.71	2.31	0.39	0.72	0.56
L013	0.3	2.33	0.59	0.50	1.87	2.40	0.90	0.70	2.47	0.30	0.67	0.50
L016	0.359	2.5	0.60	0.53	2.05	2.65	1.10	0.81	2.57	0.37	0.77	0.53
L018	0.344	2.56	0.60	0.53	2.16	2.88	1.12	0.80	2.54	0.34	0.76	0.53
L019	0.34	2.52	0.52	0.44	1.86	2.46	0.96	0.64	2.45	0.39	0.74	0.48
L022	0.36	2.5	0.63	0.54	1.97	2.49	1.05	0.82	2.56	0.35	0.80	0.54
L023	0.356	2.71	0.66	0.56	1.80	2.40	0.93	0.71	2.70	0.39	0.81	0.59



Lab. Code #	Plant sample identification and values for 2004-05: Total Selenium (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L040					0.048	0.155	0.023	0.084	0.004	0.111	0.060	0.017
L044	0 †	0	0.000 ††	0.000					10.000 ††	10.000 ††	10.000 ††	10.000 ††
L079	0.2	0.3 ††	0.200 ††	0.200 ††	0.190 ††	0.240 ††	0.090	0.040	0.160 ††	0.227	0.207 ††	0.078 ††
L097	0.11	0.024	0.057	0.005	0.049	0.150	0.027	0.085	0.036	0.115	0.083	0.000

Lab. Code #	Plant sample identification and values for 2004-05: Total Silicon (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L009	0.004	0.009	0.013	0.003	0.116	0.175	0.095	0.001	0.009	0.000	0.004	0
L011					0.400	0.540	0.370	0.059				
L019					0.068	0.276	0.019	0.004	77.5 ††	2.20 ††	26.5 ††	2.9 ††
L036	0.006	0.022	0.026	0.004	0.512	0.470	0.459	0.015	0.054	0.084	0.010	0
L037	0.001	0.003	0.001	0.001								
L040	0.003	0.007	0.008	0.002								
L044	0	0	0	0								

Lab. Code #	Plant sample identification and values for 2004-05: Total Sodium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L005	0.017 ††	0.028	0.020 ††	0.036 ††	0.100 ††	0.200 ††	0.100 ††	0.100 ††	0.050	0.010 ††	0.020	0.120 ††
L006									0.039	0.007	0.026	0.089
L008	0.003	0.037	0.082 ††	0.083	0.144	0.152	0.009	0.178 ††	0.039	0.004	0.022	0.083
L009	0.044 ††	0.078 ††	0.009	0.074	0.121	0.128	0.014	0.019	0.049	0.020 ††	0.036 ††	0.087
L010	0.002	0.044	0.012	0.105 †					0.053 †	0.005	0.038 ††	0.089
L011	0.008	0.042	0.012	0.089	0.130	0.140	0.012	0.023	0.036	0.006	0.023	0.085
L013	0.015 ††	0.045	0.019 ††	0.088	0.125	0.133	0.005 †	0.034 †	0.031	0.003	0.019	0.074
L016	0.003	0.038	0.008	0.082	0.136	0.147	0.010	0.022	0.035	0.004	0.022	0.086
L018	0.005	0.038	0.009	0.083	0.141	0.155	0.010	0.021	0.035	0.000 ††	0.020	0.081
L019	0.006	0.048	0.018 †	0.097	0.135	0.130	0.025 ††	0.043 ††	0.063 ††	0.015 ††	0.047 ††	0.092

Lab. Code #	Plant sample identification and values for 2004-05: Total Sodium (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L022	0.005	0.039	0.010	0.083	0.137	0.143	0.012	0.023	0.040	0.005	0.023	0.084
L023	0.003	0.041	0.010	0.089	0.130	0.140	0.009	0.020	0.030		0.020	0.080
L026	0.00305	0.04	0.009	0.078	0.127	0.136	0.011	0.021	0.035	0.003	0.020	0.074
L028	0.00689	0.0508	0.014	0.076	0.154	0.078 ††	0.015	0.026	0.038	0.005	0.022	0.084
L030	0.006	0.046	0.011	0.096	0.124	0.126	0.011	0.021	0.033	0.004	0.021	0.082
L032	0.0033	0.0377	0.008	0.079	0.135	0.148	0.012	0.023	0.029	0.002	0.019	0.071
L034	0.0051	0.0382	0.009	0.077	0.140	0.147	0.011	0.023	0.037	0.004	0.220 ††	0.086
L036	0.003	0.038	0.008	0.084	0.136	0.141	0.009	0.021	0.033	0.003	0.020	0.082
L037	0.012 †	0.046	0.012	0.089								
L040	0.004	0.043	0.067 ††	0.072	0.121	0.144	0.012	0.023	0.040	0.002	0.022	0.071 ††
L042					0.128	0.131	0.017	0.029	0.030	0.000 ††	0.017	0.079
L044	0	0.031	0.003 ††	0.074	0.139	0.154	0.020 †	0.033 †	0.058 ††	0.018 ††	0.037 ††	0.119 ††
L046	0.00422	0.0496	0.011	0.085								
L064	0.03 ††	0.035	0.013	0.100	0.211 ††	0.235 ††	0.065 ††	0.094 ††	0.086 ††	0.028 ††	0.038 ††	0.083
L079	0.004	0.045	0.009	0.090	0.133	0.143	0.009	0.020	0.036	0.005	0.020	0.080
L080	0.05 ††	0.06 ††	0.050 ††	0.060 ††	0.104 †	0.098 ††	0.032 ††	0.026				
L084	0.0022	0.0439	0.010	0.084	0.148	0.158	0.012	0.022	0.045	0.004	0.027	0.085
L097	0.005	0.042	0.010	0.085	0.142	0.152	0.012	0.024	0.038	0.004	0.022	0.088
L100					0.160	0.150	0.030 ††	0.030	0.049	0.004	0.028	0.081
L139					0.155	0.186 ††	0.050 ††	0.050 ††	0.042	0.004	0.025	0.071 ††
L150			0.013									

Lab. Code #	Plant sample identification and values for 2004-05: Total Sulfur (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L006									0.294	0.137	0.104	0.083
L008	0.137	0.270	0.120	0.076	0.248	0.994	0.104	0.930 ††	0.279	0.140	0.11	0.084
L009	0.129	0.286	0.109	0.076	0.226	0.841	0.095	0.098	0.283	0.119 †	0.106	0.072
L010	0.154	0.283	0.121	0.089					0.264	0.141	0.106	0.086
L011	0.130	0.276	0.109	0.080	0.250	0.930	0.110	0.110	0.305	0.150	0.109	0.089
L013	0.120	0.270	0.110	0.080	0.220	0.850	0.100	0.100	0.270	0.140	0.1	0.080
L016	0.140	0.282	0.111	0.083	0.247	0.955	0.112	0.114	0.281	0.150	0.111	0.089
L018	0.148	0.292	0.114	0.087	0.256	1.030	0.115	0.112	0.275	0.139	0.105	0.082

**Plant sample identification and values for  
2004-05: Total Sulfur (%)**

Lab. Code #	Plant sample identification and values for 2004-05: Total Sulfur (%)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L019	0.170	0.260	0.120	0.120 ††	0.260	0.790	0.120	0.130	0.357 ††	0.255 ††	0.144 ††	0.103 †
L022	0.143	0.286	0.117	0.085	0.241	0.874	0.112	0.114	0.304	0.145	0.115	0.086
L023	0.149	0.301	0.123	0.089	0.281	0.962	0.145	0.146	0.280	0.150	0.11	0.080
L026	0.146	0.302	0.118	0.086	0.245	0.957	0.108	0.114	0.285	0.138	0.109	0.082
L028	0.143	0.315	0.123	0.091	0.270	0.750	0.110	0.110	0.270	0.145	0.104	0.086
L030	0.189 ††	0.381 ††	0.162 ††	0.116 ††	0.222	0.846	0.097	0.103	0.264	0.130	0.103	0.082
L032	0.121	0.257	0.099	0.072	0.248	0.901	0.111	0.120	0.267	0.122	0.104	0.072
L034	0.149	0.294	0.113	0.087	0.245	0.972	0.113	0.112	0.292	0.144	0.109	0.088
L036	0.139	0.275	0.107	0.083	0.258	0.967	0.119	0.126	0.310	0.143	0.124	0.086
L037	0.141	0.313	0.117	0.087								
L040	0.104	0.239	0.089 ††	0.069	0.215	0.804	0.100	0.097	0.228	0.113 †	0.087 ††	0.069
L044	0.131	0.249	0.133	0.133 ††	0.229	0.838	0.141	0.195 ††	56.5 ††	24.6 ††	93.6 ††	19.7 ††
L046	0.136	0.285	0.110	0.081								
L064	0.139	0.284	0.124	0.089	0.226	0.641	0.076	0.104	0.313	0.143	0.123	0.095
L079	0.116	0.306	0.127	0.077	0.253	0.978	0.096	0.080	0.328	0.152	0.118	0.096
L080	0.260 ††	0.320	0.160 ††	0.230 ††	0.205		0.089	0.078				
L084	0.101 †	0.245	0.084 ††	0.069	0.225	0.808	0.093	0.075	0.350 †	0.089 ††	0.098	0.078
L097	0.116	0.296	0.118	0.071	0.245	0.994	0.101	0.111	0.299	0.118 †	0.109	0.058 ††
L100					0.220	0.790	0.080	0.090	0.246	0.119 †	0.092	0.071
L139					0.308 ††	0.934	0.133	0.146	0.265	0.225 ††	0.194 ††	0.171 ††
L150			0.128									

**Plant sample identification and values for  
2004-05: Total Zinc (mg/kg)**

Lab. Code #	Plant sample identification and values for 2004-05: Total Zinc (mg/kg)											
	August 2004 (Round 204)				December 2004 (Round 404)				April 2005 (Round 604)			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L003	21	18	25 ††	8.6 ††								
L005	41.7 ††	27	73.9 ††	9.2 ††	30	13	14	14	28.97 †	30.57	15.01	6.97
L006									22.5	23.8	12.7	6.36
L008	26	23	45	4.1	33	15	12	10	23	28	13	5
L009	11.5 ††	11 ††	19.8 ††	2.92 ††	33.7	17.2	12.2	14.1	23.7	24.6	13.7	8.46 ††
L010	28	27	43	6.9					22.2	26	10.9	5.64
L011	31	28	53 ††	11 ††	36	19	15	16 ††	28.2	30.7	17.4 ††	9.17 ††
L013	24	22	42	5.9	31	14	12	12	22	25	10.5	5.3

**Plant sample identification and values for  
2004-05: Total Zinc (mg/kg)**

Lab. Code #	Plant sample identification and values for 2004-05: Total Zinc (mg/kg)											
	<i>August 2004 (Round 204)</i>				<i>December 2004 (Round 404)</i>				<i>April 2005 (Round 604)</i>			
	ASP 81	ASP 82	ASP 83	ASP 84	ASP 121	ASP 122	ASP 123	ASP 124	ASP 41	ASP 42	ASP 43	ASP 44
L016	27	23	42	5.5	31.8	15	11.7	12.1	23.6	30.1	12.2	6.12
L018	29	25	47	6.2	34	18	13	13	24.7	27.7	12.6	6.34
L019	24	19	33.5 ††	5	29.8	12.3	10.5	10.8	26	31.5	12	6.52
L022	27.1	23.4	45	6	31.3	14.4	11.5	11.9	25.2	26.9	12.5	6.2
L023	25.8	24.6	53.8 ††	5.71	31	16	14	12	32 ††	37 ††	17 ††	9.1 ††
L026	27	24	43	5.7	33	16	11	12	23.3	24.7	11.4	5.51
L028	29	26	48	7	37	8.7 ††	13	13	25.5	29.5	13.9	6.9
L030	23.1	19.3	39.3	5.19	30.7	14.6	10.4	11.1	22.9	24.5	12.2	5.75
L032	24	18	35 ††	5.2	31	13	11	12	20.9	25.1	11.2	5.15
L034	27	22	41	5.6	29	14	12	12	21.9	25.2	11.8	6.56
L036	27	22	45	5.7	31	13	12	13	24	27	12	6.4
L037	21.1	34.1 ††	43.9	6.67								
L040	23	23	41	6.7	35	15	13	13	19.8	22.6	9.6	5.1
L042					33	15	14	14	27	26	13	6.1
L044	22	21	40	6	26	12	10	9.7	24.9	24.2	0.328 ††	0.338 ††
L046	30	22.2	41.2	6.94								
L047	30	25	47	5.78					21.9	22.8	13	7.07
L064	27.9	22.8	44.8	4.24	28.3	14.1	12.1	12.2	23.1	25	12.2	6.46
L079	26	25	43	5.7	33	21 ††	13	12	25.7	28.8	12.1	6.28
L080	36	27	42	2 ††	35	21 ††	13	22 ††				
L084	23.6	21.3	39.7	5.3	28.2	13.6	11	10.3	24.5	26.1	11.4	5.9
L097	27	23	45	5.7	35	17	14	13	24.7	27.5	11.7	6.14
L100					31	16	11	12	23.7	27.6	14.1	6.45
L139					31	11	12	5.2 ††	24	30	5.2 ††	6.2
L150			44									

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END