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The Laboratory Methods and Data Exchange Programme

Interim Report on the Exchange Round 85-1

L.K. Pleijsier

INTERNATIONAL SOIL REFERENCE AND INFORMATION CENTRE

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1 *Introduction*

1.1 *Objectives of the Labex programme*

The objectives of the Laboratory Exchange programme (LABEX) are twofold: a) to improve soil-classification and soil correlation and b) to provide a reference base for soil laboratories.
Soil-correlation is often handicapped by a large variability of analytical data used in soil-classification. This large variability finds its origin in various sources as (1) variability due to the different analysis methods employed, (2) variability due to modifications of the analysis methods by the individual laboratories, (3) variability due to inter-laboratory bias and (4) due to the within-laboratory bias.
Variabilities (1) and (2) can be reduced by extending the classification-systems (as the FAO/UNESCO-system or the USDA-system) with recommendations or strict guidelines how to obtain the soil parameters needed in the classification. The drafting of these guidelines on soil analysis methods is one of the objectives of the Labex-programme.
The other objective is to provide a reference base for soil laboratories. For individual laboratories it is important to gain insight into their performance relative to others.
The "within-laboratory" bias (4) is the variation in analysis results that occurs when analyses are done in the same laboratory, but on different days, by different lab-operators, using different standard solutions etc. This variation can be checked and hence also controlled by the individual laboratories themselves.
The "inter-laboratory" bias(3) is the variation between analyses done by different laboratories employing the same methods. This can only be checked by referring to results obtained by other laboratories from the same soil samples. This programme intends to provide such a reference base.

1.2 *Objectives of this report*

This report is meant mainly to serve the second objective of the programme as stated in paragraph 1.1. It will give an overview of data received at ISRIC at the beginning of October 1985.
In this way participants can compare their own results against others, not too long after having submitted them. Also outlying values are indicated but a complete statistical analysis of the data, taking into account the different analysis methods, is not given as yet. Results are given here without comments. It is up to the participants to see what their figures look like.

2 *Description of round 85-1*

2.1 *Participants*

In exchange round 85-1 15 soil samples were mailed to 85 laboratories. At the beginning of October 1985 57 participants had completed the analyses and returned their data to ISRIC. Participants are listed in the annex. The order in which they are given does not correspond with the numbering of the laboratories in the tables with the results.

2.2 *Samples*

sample no.	country of origin	soiltype	horizon	depth	soilname or location
11	Syria	saline/ calcareous/ gypsiferous soil	B	40-50	-
12	Canada	podzol	B_2	?	-
14	Malaysia	ferric acrisol	B_{21t}	43-92	Serdang
15	Hungary	sodic solonchak	B	16-29	-
16	Hungary	sodic solonchak	C	55-90	-
17	Kenya	pellic vertisol	A	0-20	Sultan Hamud
18	Kenya	pellic vertisol	C	110-150	Sultan Hamud
19	USA	typic argiustoll	A_1	0-19	Holdrege
20	USA	typic argiustoll	B_{2t}	44-67	Holdrege
23	France	mediterra-nean red soil	A	0-21	-
24	France	mediterra-nean red soil	B	21+	-

25	Brazil	xanthic ferralsol	A_1	0-15	Bra 11
26	Brazil	xanthic ferralsol	B_{2t}	80-150	Bra 11
27	Netherlands	orthic luvisol	B_1	27-58	-
28	Netherlands	orthic luvisol	B_2	58-102	-

2.3 *Soil parameters analysed*

The following soil parameters were requested: texture (sand, silt and clay), exchangeable cations, exchangeable acidity, cation exchange capacity, base saturation, organic carbon and pH. A number of participants put the silt/sand boundary at 20 microns (silt1: 2-20 microns, sand1: 20-2000 microns), but others observed 50 microns as the silt/sand boundary (silt2: 2-50 microns, sand2: 50-2000 microns). A number of participants returned a detailed split up in many textural fractions. These figures were combined where possible to give the requested fractions.
By some participants 2 sets of figures for CEC (and base saturation) were given, analysed by a direct method and by summation. Both sets are included in this report under different laboratory code numbers.
Figures for texture and base saturation have been rounded to integers. pH, exchangeable Ca and CEC are presented with one decimal, other exchangeable bases, exchangeable acidity and organic C are presented with two decimals.

3 *Results*

3.1 *Internal inconsistencies*

After the data had been received at ISRIC they were subjected to an error checking routine. This routine that checks internal inconsistencies in the data was developed primarily to detect the 'typing' errors that are almost unavoidable when keying in a big number of figures. However after the typing errors had been corrected a number of inconsistencies remained. These are generally not removed from the figures in this report (except for the modifications described in paragraph 3.2). The participants concerned will find enclosed with this report a computer printout giving details on inconsistencies in their data.

The control points are:

- sand+silt+clay = 100% (1% margin)
- silt1 <= silt2
- sand1 >= sand2
- pH-H_2O > pH-KCl and pH-$CaCl_2$

$4 < pH\text{-}H_2O < 9$
$4 < pH\text{-}KCl < 8$
$4 < pH\text{-}CaCl_2 < 8$
sum of exch. cations <= CEC
at pH >7 sum of exch.cations = CEC (10% margin)
at pH >7 exch.Ca > sum of other exch.cations
sum of exch.cations + exch.acidity = CEC (10% margin)
base saturation = sum of exch.cations / CEC (10% margin)
base saturation = (CEC - exch.acidity) / CEC (10% margin)

It has to be stressed that detected inconsistencies do not always point to errors in the data. They only indicate which data are not in agreement with the above given control points. E.g. when $pH\text{-}H_2O$ exceeds a value of 9 it is detected here as an inconsistency. For some soils however the pH can very well reach this value but in general a $pH\text{-}H_2O$ higher than 9 is not expected . As they show a certain overlap, a single inconsistency is usually be detected by more than one control point. Therefore the above mentioned printout might look unnecessary extensive.

3.2 *Modifications in the data*

In order to increase the mutual comparability of the data some modifications have been applied. This concerns the data for texture, base saturation and exchangeable acidity.

- Texture:
  A small number of participants has calculated the textural fractions such that clay%+silt%+sand%+$CaCO_3$%=100%. This has been modified so that the sum of the texture components (excluding carbonate) equals 100%.

- Base Saturation:
  Where base saturation is not given by the participants it is calculated as (sum of exchangeable cations)/CEC *100%, if the exchangeable bases and CEC are available. Base saturation figures given by participants were left unaltered.

- Exchangeable Acidity:
  Some participants do not determine exchangeable acidity in samples where $pH\text{-}H_2O$ is higher than 6, while other labs in that case make exchangeable acidity = 0. In this report the non-determined exchangeable acidities are made equal to zero, provided $pH\text{-}H_2O>6$, base saturation>99%, and a value for CEC is given.

3.3 *Results and outlying individual data*

An overview of all results received at ISRIC is given in table 1. Additionaly in this table the median of the data for each sample is calculated. This median is the 'half-way' value. This means that the number of participants reporting a lower value than the median equals the number of those with a higher value. It is considered a

good estimate of the centre of the data as it is less sensitive to extreme and outlying values than the mean. Also the median absolute deviation is calculated. This is the median of the absolute value of the residuals (i.e. the original values minus their median). In table 1 the median and the median absolute deviation are given in the rows med1 and mad1 respectively. Values higher than med1 + 2*mad1 or smaller than med1 - 2*mad1 are marked with a double asterix **. After deleting these marked values the median and the median absolute deviation are calculated again. In table 1 these are given as med2 and mad2. Values differing more than twice mad2 from med2 are marked with a single asterix *. In this way an indication of the spread of the data is given together with an indication of the outlying values. How far these ** marked values are real outliers cannot be stated here. They are marked only because they deviate from the median more than others do.

3.4 *Outlying laboratories*

Outlying laboratories can be identified by the rank-sum-test for outliers as described by Thompson and Willke(1963) and Youden(1975). In this test the data for each sample are replaced by ranks, giving rank 1 to the lowest value and rank N to the highest, when N is the number of laboratories. When ties occur the ranks are averaged. Rows from which one ore more values are missing, are skipped. The sum of the ranks will equal N*(N+1)/2 for each sample. Summing the ranks per laboratory will result in a score for each laboratory. When M is the number of samples the lowest possible score is M and the highest possible score N*M. A laboratory that reports the lowest value on every sample will get the score M. This score is obviously associated with a lab that consistently gets low results and the presumption arises that this lab has a pronounced systematic error. Under H_o (nullhypothesis) that no laboratory has a systematic error, the scores will cluster round M*(N+1)/2. An upper and a lower limit can be calculated, so that there is a 5% chance that a rank sum score will fall below the lower limit or will exceed the upper limit when in reality H_o is valid. In table 2 the ranks, rank-sums and upper and lower limits are given. Rank-sums below the lower limit or above the upper limit are marked with **. This indicates that the laboratories concerned produce figures consistently lower or higher than others. Table 2 is given for clay%, pH-H_2O, CEC and organic carbon.

References:

Thompson, W.A. and T.A. Willke(1963)
"On an extreme rank sum test for outliers"
Biometrika **50**, 3 *and* 4, p.375

Youden, W.J. (1975),
"Statistical techniques for collaborative tests"
in *Statistical Manual of the Association of Official Analytical Chemists* by W.J. Youden and E.H. Steiner,
AOAC, Arlington, VA, USA.

TABLE 1

CLAY (%)

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	29	4	34	33	8	74*	81	25	29	25**	39	11	26	25	19
4	42	13**	35	34	11	79	77	25	31	34	43*	13	27	25	20
5	48	12*	35	21	6*	87	87	24	31	34	41	11	26	24	20
6	40	5	32**	32	10	85	88	23	31	32	41	12	27	23	19
7	48	5	34	26	6*	84	86	26	31	35	40	12	26	23	19
9	28	4	24**	26	10	44**	48**	18**	20**	22**	28**	10	18**	18**	16**
12	63**	52**	-	36	56**	-	-	64**	47**	44**	54**	35**	27	34**	30**
14	37	11*	33	22	4**	68*	62**	22	19**	35	35*	10	30**	39**	20
15	56**	6	37	27	8	80	68*	23	29	37	38	7**	27	21	17
16	4**	7	34	33	8	71*	76	26	29	29	38	9**	25	22	15**
17	28	8	35	20	7	41**	44**	21	21**	34	39	12	27	19*	17
19	38	3	36	33	10	87	88	25	32	33	41	13	28	24	19
21	0**	0*	0**	0**	0**	1**	1**	0**	0**	0**	0**	0**	0**	0**	0**
22	32	13**	36	31	9	82	83	22	29	25**	36*	13	27	17**	22**
23	33	6	35	18**	5*	84	85	23	30	31	40	12	27	22	19
26	37	3	34	36	11	79	78	20	28	30	40	10	26	23	21
27	32	3	35	29	9	80	81	23	29	28*	39	12	26	23	18
28	34	19**	38**	16**	7	83	87	24	31	34	42*	46**	29**	23	20
29	36	7	36	35	12*	71*	79	16**	30	26*	41	9**	28	25	21
30	4**	2	34	25	12*	72*	74	12**	23**	18**	39	6**	26	22	19
31	52*	12*	36	39	16**	76	81	26	33*	38*	46**	15**	30**	29**	22**
32	50*	5	35	25	6*	87	88	26	32	34	41	13	27	26*	19
33	46	3	35	25	4**	89*	91*	25	31	35	35*	12	29**	24	21
34	47	15**	35	24	5*	84	87	27	33*	31	39	12	26	30**	19
35	12**	3	35	13**	10	63**	74	24	28	14**	35*	6**	19**	24	18
37	38	8	32**	36	12*	48**	60**	26	22**	16**	40	4**	20**	20*	18
38	43	9	37	25	8	80	83	25	32	35	41	12	28	23	19
39	32	6	34	33	11	86	86	25	30	32	38	11	19**	25	25**
41	-	-	-	-	-	-	-	-	-	-	-	2**	6**	26*	-
42	26	2	35	32	9	82	80	23	28	33	39	11	25	22	18
43	34	8	38**	38	17**	86	85	29**	31	30'	43*	13	31**	27*	23**
44	29	4	30**	39	7	60**	64**	21	27*	28*	36*	10	22**	21	15**
45	24	4	34	30	9	58**	73*	23	28	25**	34**	12	26	21	18
46	20	0*	28**	28	8	52**	54**	12**	22**	22**	30**	6**	20**	18**	14**
47	25	12*	34	34	10	45**	75	26	26*	34	39	15**	29**	23	20
48	55**	23**	35	29	9	87	82	55**	60**	42**	53**	14	27	60**	32**
50	45	12*	35	24	6*	84	86	22	26*	36	39	12	26	20*	17
51	-	-	35	18**	9	84	87	24	31	32	36*	11	24*	0**	18
52	42	6	34	33	10	81	83	24	31	30	40	11	25	23	18
54	41	14**	38**	39	12*	82	81	27	32	37	41	14	28	26*	21
55	21	0*	31**	33	9	43**	57**	13**	20**	21**	36*	5**	22**	18**	14**
59	27	6	35	24	6*	82	82	22	31	35	40	13	28	20*	16**
60	25	13**	28**	28	12*	47**	47**	20	25*	28*	32**	12	20**	19*	15**
62	1**	3	35	32	10	74*	77	24	29	32	40	12	28	23	19
64	55**	6	25**	36	8	70*	77	22	29	30	42*	11	26	23	20
67	1**	2	32**	19*	3**	18**	66**	22	27*	29	38	11	19**	22	18
68	-	11*	33	31	9	-	-	22	26*	-	36*	11	26	22	17
69	43	-	-	25	6*	83	83	-	-	35	-	-	-	-	-
70	29	4	33	29	8	77	81	22	27*	31	38	9**	-	21	19
71	42	-	-	28	5*	82	85	-	-	32	-	-	-	-	-

CLAY (%)

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
73	32	50**	38**	40**	70**	14**	16**	30**	14**	34	32**	76**	62**	22	30**
74	21	7	35	21	6*	62**	67**	22	28	35	39	14	26	18**	15**
76	34	1	37	35	11	24**	78	24	30	35	40	12	27	31**	19
77	43	7	28**	24	9	79	77	17**	33*	33	43*	13	27	22	18
MED1	34.0	6.0	35.0	29.0	9.0	79.0	80.0	23.0	29.0	32.0	39.0	12.0	26.0	23.0	19.0
MAD1	9.0	3.0	1.0	5.0	2.0	7.0	6.0	2.0	2.0	3.0	2.0	1.0	1.0	2.0	1.0
MED2	34.0	5.0	35.0	30.0	9.0	82.0	82.0	24.0	30.0	33.0	39.0	12.0	27.0	23.0	19.0
MAD2	7.0	2.0	1.0	5.0	1.0	3.0	4.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0

SILT1 (%)

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	25	15	2	16	7	17*	11	15*	19	23**	19	0	2	16	12
5	15	17	1	20**	7	6	7	20	23	18	19	2	2	20*	16
6	28	17	1	16	6	7	4*	18	18	17	17	1	1	17	14
7	14	19	1	14	5*	7	7	19	18	18	17	1	2	18	15
12	21	16	-	7**	6	-	-	11**	19	17	20	2	6**	16	14
16	66**	43**	3	24**	12**	24**	18**	54**	55**	32**	30**	3	5**	61**	62**
19	29	14	2	16	7	5	3*	17	17	16	18	0	1	15	14
21	0**	0**	0	1**	0**	1**	1**	0**	1**	0**	1**	0	0	0**	0**
22	29	8**	1	17	7	11	8	18	17	21*	19	2	2	13*	14
26	24	12	2	17	7	11	7	27**	23	22*	17	5**	2	15	19*
28	12**	14	1	9**	5*	11	5	15*	16	17	14**	7**	2	16	11*
29	23	12	3	16	5*	15*	9	32**	23	22*	17	4*	2	18	14
30	50**	13	5**	21**	7	16*	14*	28**	24	25**	19	6**	4	20*	19*
32	15	18	1	14	5*	6	5	17	17	16	19	1	1	16	14
33	18	17	3	17	6	4*	3*	19	23	17	22*	3	0	19	14
38	17	16	1	16	12**	11	7	18	19	16	17	1	3	18	18*
39	29	25**	2	20**	7	7	8	46**	39**	24**	25**	2	11**	41**	35**
41	-	-	-	-	-	-	-	-	-	-	-	3	4	15	-
43	27	7**	2	19**	6	11	8	20	25	35**	19	5**	3	21*	20**
44	25	17	3	15	10**	26**	22**	21*	19	19	19	1	3	16	16
47	48**	20	7**	17	14**	47**	17**	17	21	17	20	5**	6**	16	16
50	17	14	1	16	5*	8	7	20	20	18	17	2	2	8**	15
52	19	18	2	16	6	10	8	17	18	19	17	2	2	16	14
54	25	18	1	23**	8*	5	5	23*	24	20*	19	0	2	22*	18*
55	13	13	2	19**	7	27**	28**	27**	30**	27**	22*	7**	5**	26**	22**
64	16	41**	2	17	9*	8	10	56**	53**	28**	25**	2	4	54**	60**
67	41**	12	3	4**	0**	26**	8	17	20	15	19	1	4	17	18*
68	-	17	1	17	7	-	-	19	21	-	20	1	2	17	15
69	19	-	-	15	4**	10	9	-	-	18	-	-	-	-	-
70	5**	47**	6**	32**	17**	17*	12*	46**	43**	34**	29**	7**	-	45**	36**
71	30	-	-	21**	13**	13	10	-	-	26**	-	-	-	-	-
74	27	15	2	15	7	20**	14*	19	20	17	16*	1	1	18	13
76	24	1**	1	15	6	7	7	12**	16	16	17	1	1	21*	13

SILT1 (%)

	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
77	21	19	2	18	6	9	12*	24**	24	17	19	1	0	22*	20**
MED1	23.5	16.0	2.0	16.0	7.0	11.0	8.0	19.0	20.0	18.0	19.0	2.0	2.0	17.5	15.0
MAD1	5.5	3.0	1.0	1.0	1.0	4.0	3.0	2.0	3.0	2.0	2.0	1.0	1.0	2.5	2.0
MED2	23.0	16.0	2.0	16.0	6.5	9.5	8.0	18.0	20.0	17.0	19.0	1.0	2.0	17.0	14.0
MAD2	5.0	2.0	1.0	1.0	0.5	2.5	1.5	1.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0

SILT2 (%)

	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
4	29	60**	3	21	12	16	17	68	64	36	32	4	4	70	75
5	25	46	2	32	12	9	8	64	59	31	31	3	5	68	71
6	38	56*	5	28	13	10	6	67	63	33	32	4	4	70	75
7	28	56*	3	27	11	12	10	67	63	35	34	3	5	71	76
9	12**	18**	2	14**	8	10	6	34**	32**	12**	14**	2	2**	30**	36**
12	23	25*	-	17	18**	-	-	29**	46*	30	24*	18**	15**	58*	61
14	32	45	4	27	10	24*	32**	64	69	32	35	3	3*	53*	71
15	12**	48	1	22	10	15	25**	39**	46*	24**	26	7**	6*	49**	34**
17	39	40	4	20	5**	48**	47**	64	65	32	28	3	2**	66	63
19	38	47	3	28	12	9	6	65	60	32	30	2	3*	67	72
21	79**	63**	37**	62**	27**	92**	94**	95**	92**	70**	75**	16**	31**	93**	94**
23	48*	59**	3	47**	32**	11	11	69	63	42**	32	5	4	71	75
27	42	58*	3	33	14	16	13	70	65	38*	34	4	5	71	77
28	27	39	2	22	11	13	7	61	56	29	25	4	4	68	71
29	35	32	5	26	10	21*	12	63	61	34	27	7**	6*	68	60
31	18	38	4	19	10	7	0**	53*	49	28	24*	3	4	50**	56
34	24	39	2	26	12	11	9	47**	52	35	29	2	5	49**	52*
35	42	35	4	36	12	29**	20*	54*	60	46**	36	11**	10**	59*	64
37	28	24*	4	20	8	28**	20*	30**	54	38*	24*	10**	6*	58*	60
38	29	43	2	27	15	15	12	54*	55	31	27	5	4	63	64
39	38	38	3	26	9	9	9	59	59	32	30	7**	12**	60*	60
42	50*	52	4	30	14	13	14	73*	69	35	35	3	7*	75*	79
43	38	36	5	28	15	12	10	58	58	40**	30	10**	5	63	60
44	45	57*	7**	21	17**	36**	30**	72	67	37	37*	4	9**	74	80
45	44	39	3	29	12	36**	20*	60	58	35	34	5	4	65	68
46	25	28	2	20	12	16	14	54*	50	30	26	4	4	58*	60
48	14**	8**	1	14**	5**	8	13	21**	26**	26**	21**	6	5	21**	37**
51	-	-	1	38*	9	9	7	54*	49	29	30	2	6*	81**	59
52	31	52	3	27	13	14	11	64	57	34	32	4	5	71	74
55	21	41	7**	28	15	36**	34**	69	66	41**	32	8**	9**	64	68
59	48*	55*	3	33	17**	13	15	65	48*	33	29	5	2**	72	77
60	40	24*	6**	9**	6**	5*	5	33**	26**	13**	9**	4	10**	38**	38**
61	56**	56*	11**	34	15	49**	48**	71	70*	40**	41**	6	12**	74	78
62	73**	37	3	29	9	22*	18	61	58	32	31	3	4	65	68
67	76**	33	1	44**	30**	66**	22*	65	62	42**	31	5	7*	68	69
73	20	38	22**	18	10	8	8	40**	50	28	22*	6	4	48**	46**

SILT2 (%)

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
77	31	50	4	29	12	15	17	67	57	33	31	3	4	64	66
MED1	33.5	40.5	3.0	27.0	12.0	14.5	13.0	63.0	58.0	33.0	30.0	4.0	5.0	65.0	68.0
MAD1	8.5	9.0	1.0	6.0	2.0	5.5	5.5	6.0	6.0	3.0	4.0	1.0	1.0	6.0	8.0
MED2	32.0	40.0	3.0	27.0	12.0	12.0	11.5	64.0	59.0	32.5	30.5	4.0	4.5	67.5	68.0
MAD2	7.0	7.0	1.0	5.0	2.0	3.0	3.5	4.0	5.0	2.5	3.0	1.0	0.5	3.5	7.0

SAND1 (%)

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
1	45*	81	64	51	86	9	8	60	53	52	42	89	73	59	69
5	37	71	64	59	87	7	6	56*	46*	48	40	87	72	56	64
6	32*	78	67**	52	84	8	8	59	51	51	42	87	72	60	67
7	38	76	65	59	89*	9	7	56*	51	47	43	87	72	59	66
12	16**	32**	-	57	38**	-	-	25**	34**	39**	26**	63**	66**	50**	57**
16	29*	50**	63	43	80	6	6	20**	16**	40**	32**	88	70	17**	23**
19	33*	83	63	51	83	8	9	58	51	51	42	87	72	62	67
21	100**	100**	100**	100**	100**	99**	99**	100**	100**	100**	99**	100**	100**	100**	100**
22	39	79	63	52	84	7	9	60	54	54*	45*	85	71	70**	64
26	39	85	64	47	82	10	15*	53**	49*	48	43	85	72	62	60*
28	54**	67*	61	75**	89*	7	7	60	52	48	44	46**	68**	60	69
29	41	81	61	49	83	14**	12	52**	47*	52	41	87	70	57	65
30	46*	85	61	54	81	12*	11	60	53	57**	43	88	70	58	63
32	35	76	64	61*	89*	7	7	58	52	50	40	86	72	59	67
33	36	80	63	59	90*	7	6	56*	46*	48	42	85	71	58	65
38	39	75	63	58	80	9	9	58	49*	48	42	87	70	59	64
39	40	69	64	47	82	7	6	30**	31**	44	37**	87	70	35**	39**
41	-	-	-	-	-	-	-	-	-	-	-	95**	89**	59	-
43	39	84	59**	43	77**	3**	7	50**	44**	36**	38*	82**	67**	52**	57**
44	46*	78	66*	45	83	14**	14*	59	54	53*	45*	89	74	63	70*
47	27**	69	59**	49	77**	8	8	57	53	49	41	81**	65**	61	64
50	37	73	63	60	89*	7	6	58	54	46	43	85	72	71**	67
52	38	76	64	51	83	9	9	60	51	50	43	87	72	60	67
54	34	68	61	38**	80	13*	14*	50**	44**	43*	40	86	70	52**	61
55	66**	87	67**	48	84	30**	15*	60	50	52	42	88	73	56	64
64	29*	52**	73**	48	83	22**	14*	23**	18**	43*	33**	87	70	23**	20**
67	58**	86	65	77**	97**	56**	26**	61	53	56**	43	88	77**	61	64
68	-	72	65	52	84	-	-	59	53	-	44	88	73	61	68
69	38	-	-	60	90*	8	8	-	-	47	-	-	-	-	-
70	66**	49**	61	39**	75**	6	7	32**	30**	35**	33**	84**	-	34**	45**
71	28**	-	-	51	82	5*	5	-	-	42*	-	-	-	-	-
74	52**	78	63	64*	87	18**	19**	58	52	48	45*	85	73	64*	71**
76	43*	99**	62	50	84	70**	15*	64**	54	49	43	87	72	48**	67
77	36	74	70**	58	85	12*	11	59	43**	50	38*	86	73	56	62
MED1	38.5	76.0	63.5	52.0	84.0	9.0	9.0	58.0	51.0	48.0	42.0	87.0	72.0	59.0	64.0
MAD1	5.0	7.0	1.5	6.0	3.0	2.0	3.0	2.0	3.0	3.5	2.0	1.0	1.0	3.0	3.0
MED2	38.0	78.0	63.0	51.5	84.0	8.0	8.0	59.0	52.0	48.0	42.0	87.0	72.0	59.0	65.0
MAD2	2.0	5.0	1.0	4.5	2.0	1.0	2.0	1.0	1.0	2.0	1.0	1.0	1.0	2.0	2.0

SAND2 (%)

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
4	29	27*	62	45	77	5	6	7	5*	30	25	83	69	5	5
5	27	42	63	47*	82	4*	5	12	10	35	28	86	69	8	9
6	22*	39	63	40	77	5	6	10	6	35	27	84	69	7	6
7	24	38	62	47*	83	4*	4*	7	6	30	27	86	69	6	5
9	60**	78**	74**	60**	82	46**	46**	48**	48**	66**	58**	88*	80**	52**	48**
12	14**	23**	-	47*	26**	-	-	7	7	26**	22**	47**	57**	8	10
14	31	44	64	51*	86**	8**	7*	13	12	34	30	87	68*	8	9
15	32	46	62	51*	81	5	7*	39**	25**	39	36*	86	67*	31**	49**
17	33*	53	61	60**	88**	11**	9**	15	15	34	34	85	71*	15*	21
19	24	49	62	40	78	5	6	10	9	35	29	86	69	9	9
21	21*	37	63	38	73*	8**	5	6	8	31	25	85	69	7	6
23	19**	35	62	35*	63**	5	4*	9	7	27**	28	83	69	8	7
27	27	39	62	39	76	5	5	7	6	35	27	85	69	6	5
28	39**	42	61	62**	82	5	5	14	13	37	32	83	67*	9	9
29	29	61*	59**	40	79	9**	9**	21	9	40	32	84	67*	7	20
31	30	50	60	42	74*	17**	19**	21	18	34	30	82	66**	21**	22
34	29	46	63	51*	84*	5	4*	27*	16	34	32	86	69	21**	30**
35	46**	62*	61	51*	78	8**	6	22*	12	40	29	83	71*	17*	18
37	34*	68**	64	44	80	24**	20**	44**	24**	46**	36*	86	74**	22**	22
38	28	49	61	48*	77	5	5	22*	13	34	32	84	69	14*	18
39	30	56	63	41	79	5	5	16	12	36	31	82	69	15*	15
42	24	46	61	38	77	5	6	4*	3**	32	26	86	68*	3*	3
43	28	56	57**	34**	68**	2**	5	13	12	30	27	77**	64**	11	17
44	26	39	62	39	76	4*	6	7	6	35	27	86	68*	5	5
45	31	57	63	41	79	6*	7*	17	15	40	32	83	70*	14*	14
46	55**	72**	70**	52**	80	32**	32**	34**	28**	48**	44**	90**	76**	24**	26*
48	32	68**	64	56**	85**	5	4*	23*	13	32	26	79**	68*	19*	32**
51	-	-	64	44	81	7*	7*	21	20*	39	34	87	69	19*	23*
52	27	42	62	39	77	5	6	12	12	35	28	84	69	6	7
55	58**	59	62	39	76	21**	9**	18	14	38	32	87	69	18*	18
59	26	39	62	43	77	5	4*	14	21**	32	31	82	70*	8	7
60	35*	62*	67**	63**	82	47**	47**	47**	50**	59**	59**	83	71*	43**	47**
61	19**	30*	62	39	73*	4*	5	9	5*	32	26	82	68*	7	7
62	26	60	63	40	82	5	6	16	14	36	30	85	69	13*	14
67	23*	65*	67**	37	67**	16**	12**	13	11	29	31	84	74**	10	13
73	48**	12**	40**	42	20**	78**	76**	30**	36**	38	46**	18**	34**	30**	24*
77	26	43	68**	47*	79	6*	6	16	10	34	26	84	69	14*	16
MED1	28.5	46.0	62.0	43.0	78.0	5.0	6.0	15.0	12.0	35.0	30.0	84.0	69.0	11.0	14.0
MAD1	4.0	9.5	1.0	4.0	3.0	1.0	1.0	6.0	4.0	3.0	3.0	2.0	1.0	4.0	7.0
MED2	28.0	46.0	62.0	41.5	79.0	5.0	5.5	13.0	12.0	35.0	29.5	84.5	69.0	8.0	11.5
MAD2	2.0	7.0	1.0	2.5	2.0	0.0	0.5	4.0	3.0	3.0	2.5	1.5	0.0	2.0	5.5

pH-H_2O

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	7.6**	5.0	4.8	10.0**	10.0	7.7	8.2	6.5*	7.1	7.9	7.9	6.2*	5.0	6.5	7.0
4	7.4**	5.1	4.8	10.1*	10.0	8.1	8.6	6.5*	7.5	8.0	8.0	5.8	5.0	6.5	7.0
5	7.9	5.0	4.8	10.3	10.2	7.9	8.4	6.2	7.3	8.0	7.9	5.8	4.9	6.6	7.0
6	7.9	4.6**	4.6	10.6**	10.4	7.9	8.5	6.8**	7.4	7.9	7.7	5.6	5.0	6.2	6.6
7	8.0**	5.1	4.7	10.3	10.4	8.0	8.4	6.3	7.5	8.0	8.1	5.9	4.7	6.7	7.0
9	7.9	4.8	4.7	10.3	10.2	7.7	8.1	5.9*	7.1	7.7	7.7	5.4*	4.7	6.1**	6.6
10	6.8**	5.2	5.0	9.2**	9.5**	7.6	8.0*	6.5*	7.0	7.5**	7.5*	6.0*	5.2*	6.2	6.5
12	7.9	4.8	4.6	10.3	10.3	7.8	8.1	6.0	7.8*	8.0	7.9	5.6	4.7	6.2	6.6
14	7.7**	5.2	5.0	9.8**	9.8**	7.5	7.9**	6.2	7.2	7.8	7.7	5.7	5.1	6.5	6.7
15	7.8*	4.6**	4.3**	10.5*	10.3	7.6	8.3	6.3	6.7	7.6**	7.6	5.6	4.6*	6.0**	6.3**
16	6.6**	5.8**	5.3**	9.6**	9.8**	7.9	7.8**	6.7**	6.9	7.1**	7.3**	6.1*	6.1**	6.3	6.4
17	7.3**	5.1	4.9	10.0**	9.9*	7.9	8.3	7.2**	6.9	7.8	7.6	6.2*	5.1	6.1**	6.5
19	8.1**	5.0	4.7	10.5*	10.4	8.2	8.6	6.2	7.5	8.2	8.1	5.6	4.8	6.8	7.0
21	7.6**	4.9	4.8	9.9**	9.8**	7.7	8.3	6.1	6.8	7.7	7.4**	5.7	4.7	6.3	6.5
22	7.8*	5.0	4.8	10.4	10.3	8.0	8.6	6.3	7.6	8.1	8.0	6.0*	5.2*	6.3	6.5
23	7.9	5.4**	5.1*	10.3	10.2	8.1	8.7	6.3	7.0	8.0	8.0	6.0*	5.2*	6.4	6.7
27	7.9	4.7**	4.7	10.2	10.3	6.9**	8.2	6.0	6.7	8.0	7.6	6.2*	5.0	6.4	6.4*
28	8.0**	4.7**	4.6	10.4	10.2	7.7	8.5	6.2	7.5	8.1	8.0	5.7	4.8	6.6	6.7
29	7.8*	5.0	4.8	10.1	10.0*	7.7	8.2	6.1	6.9	7.7	7.6	5.7	4.8	6.3	6.6
30	7.8*	4.9	5.0	10.3	10.0	7.8	8.4	6.1	7.0	7.8	7.7	5.8	5.0	6.5	6.8
31	7.8*	5.0	4.9	10.2	10.1	7.6	7.9**	6.0	6.7	7.8	7.8	5.5	4.4**	6.2	6.4*
32	7.9	5.2	4.9	10.2	10.2	8.2	8.6	6.3	7.5	8.2	8.1	5.9	4.9	6.6	6.8
33	7.9	4.9	4.8	10.4	10.4	8.0	8.5	6.4	7.6	8.2	8.2	5.8	4.9	6.8	7.2
34	7.9	5.0	4.9	10.3	10.4	8.0	8.4	6.2	7.6	8.1	8.0	5.8	5.0	6.8	7.0
35	7.9*	4.7**	4.5**	10.4	10.2	8.0	8.4	6.2	7.2	8.1	7.5**	5.4**	4.6*	6.2	6.5
36	7.8*	4.6**	4.6*	10.2	10.2	7.7	8.2	6.0	6.9	7.7	7.7	5.5	4.5*	6.3	6.7
37	7.9	6.7**	6.2**	10.0**	9.9*	8.5**	8.7	7.4**	7.7	8.2	8.1	7.1**	6.6**	6.9**	7.1
38	7.6**	5.2	5.1*	10.0**	10.0	7.5	8.0*	6.3	6.8	7.6**	7.2**	5.9	5.0	5.9**	6.1**
39	7.6**	6.0**	6.3**	9.9**	9.7**	8.3	7.9**	6.8**	7.4	7.5**	7.7	6.5**	6.4**	6.8	7.0
42	7.9	6.6**	6.3**	10.7**	10.7**	8.7**	8.8**	8.0**	8.3**	8.4	8.5**	7.2**	6.2**	6.7	7.3**
43	7.9	5.1	5.0	10.4	10.3	8.1	8.6	6.4	7.3	8.1	8.0	5.8	4.9	6.8	6.6
44	8.1**	5.2	5.3**	10.1*	10.1	8.5**	8.6	6.7*	7.7	8.3	8.0	7.2**	5.8**	6.7	6.9
45	8.0*	5.1	5.0	10.4	10.4	7.5	8.1*	6.1	7.0	8.1	7.9	5.5	4.9	6.0**	7.0
46	7.0**	5.9**	5.0	10.0**	9.8**	7.8	8.1	7.0**	7.0	7.6**	7.7	6.5**	5.6**	6.4	6.1**
47	7.5**	4.9	4.8	9.8**	10.0*	7.9	8.3	6.1	7.4	7.8	8.0	5.7	4.8	6.7	7.2
48	7.9	4.9	4.8	10.3	10.3	8.0	8.7	6.3	7.4	8.2	8.0	5.7	4.7	6.6	7.0
49	7.4**	5.1	4.9	10.5*	10.4	8.0	8.5	6.3	7.1	7.7	7.9	5.8	5.0	6.6	6.9
50	7.9	5.2	5.0	10.6**	10.5*	7.9	8.9**	6.5*	7.3	8.2	8.2	6.3**	5.2*	6.6	6.8
51	7.6**	5.1	5.0	10.3	10.1	8.1	8.7	6.8**	7.7	8.4	8.1	6.2*	5.5**	6.8	6.9
52	7.6**	5.2	5.0	10.3	10.3	8.3	8.3	6.7*	7.5	8.1	8.3*	6.0*	5.1	6.6	7.1
53	7.8*	5.1	4.9	10.3	10.4	8.0	8.7	6.4	7.4	8.2	8.1	5.9	5.0	6.7	7.0
54	7.9	4.9	4.8	10.4	10.5*	7.9	8.3	6.1	6.9	7.8	7.9	5.7	4.9	6.6	6.9
55	7.7**	5.0	4.7	10.0*	10.0*	7.2**	8.4	5.8**	6.3**	7.8	6.8**	5.4**	4.8	6.2	6.4
60	7.9	5.0	4.9	10.2	10.2	8.0	8.5	6.5*	7.3	8.1	8.0	6.2*	4.8	6.6	7.0
62	7.8*	4.9	4.8	10.1*	9.8**	7.6	8.0*	6.1	6.9	7.9	7.9	5.6	4.9	6.5	6.9
63	7.9	4.8	4.5*	10.5*	10.5*	8.1	8.5	6.0	7.4	8.0	8.1	5.5	4.6*	6.5	6.9
64	7.9*	4.9	4.8	10.3	10.1	8.0	8.2	6.1	6.9	8.0	8.0	5.6	4.8	6.5	6.4*
67	7.8*	4.9	4.7	10.3	10.3	7.7	8.3	6.0	7.2	7.8	7.8	5.6	4.8	6.6	6.8
68	7.9	5.1	5.0	10.4	10.3	8.0	8.4	6.4	7.5	8.1	8.0	5.8	5.1	6.8	7.1
70	8.3**	5.6**	6.0**	10.1*	9.8**	7.7	8.3	7.3**	7.6	8.0	7.8	6.6**	5.9**	7.0**	7.1

pH-H_2O

	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
73	7.7**	5.2	4.7	10.1*	9.9*	7.8	8.3	6.1	7.1	7.8	7.7	5.6	4.9	6.4	6.7
74	7.8*	4.8**	4.6	10.1*	10.1	7.4**	7.8**	6.0*	6.7	7.8	7.7	5.4*	4.8	6.2	6.5
75	7.9	4.9	4.8	10.3	10.2	8.2	8.6	6.3	7.6	8.1	8.0	5.7	4.9	6.7	7.0
76	7.8*	4.4**	4.4**	9.9**	9.8**	7.6	8.2	5.8**	6.7	7.6**	7.6	5.4*	4.7	6.4	6.6
78	7.6**	4.7**	4.6	10.2	9.7**	7.6	7.7**	6.0	6.7	7.4**	7.6	5.2**	4.7	6.2	6.1**
MED1	7.84	5.00	4.80	10.30	10.18	7.90	8.30	6.30	7.20	8.00	7.90	5.80	4.90	6.50	6.80
MAD1	0.06	0.10	0.15	0.15	0.18	0.20	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20	0.20
MED2	7.90	5.00	4.80	10.30	10.21	7.90	8.40	6.20	7.20	8.00	7.90	5.72	4.90	6.50	6.80
MAD2	0.00	0.10	0.10	0.10	0.11	0.20	0.17	0.11	0.30	0.20	0.19	0.12	0.12	0.20	0.20

pH-KCl

	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
1	7.5**	4.2	4.0	9.9**	9.6**	7.2**	7.9**	5.8**	6.4**	7.4	7.2**	5.7**	4.2	5.6**	5.8**
4	7.3	4.3*	4.2	9.1	9.0	6.6	7.1	5.3*	6.0*	7.2	6.7	5.2	4.2	4.8	5.1
5	7.2	4.2	4.1	9.1	8.9	6.5	7.0	5.1	5.8	7.3	6.6	5.0	4.2	5.0	5.1
6	7.1	4.1*	4.0	9.6**	9.6**	6.7	7.1	5.2	6.0*	7.4	6.7	4.9	4.2	4.9	5.0
7	6.9	4.1*	4.0	9.3	9.3	6.3	6.5**	5.1	5.8	7.1	6.3**	4.9	4.1*	4.9	5.1
9	7.0	4.2	4.1	9.3	8.8	6.6	6.8	5.1	5.7	7.0*	6.5	5.0	4.3	4.9	5.0
10	6.3**	4.2	4.0	8.5**	8.5**	6.4	6.7**	5.5**	5.9	6.5**	6.4*	5.2	4.5	4.9	5.0
12	7.2	4.1*	4.1	9.4	9.2	6.4	6.9	5.1	6.6**	7.1	6.5	5.0	4.3	5.1*	5.2
14	6.8*	4.1*	4.0	9.2	9.0	6.4	6.7**	5.0	5.7	6.9*	6.4*	4.8	4.1*	4.8	5.0
15	6.7**	4.2	4.1	9.7**	9.6**	6.7	7.0	5.2	5.8	6.8**	6.6	5.0	4.2	5.0	5.2
16	6.3**	4.2	4.0	8.8*	8.5**	6.6	6.7**	6.0**	6.1*	6.5**	6.6	5.9**	4.1	5.2**	5.3**
17	6.9	4.4**	4.2	9.0	9.1	6.9*	7.1	6.5**	6.5**	7.2	6.9**	5.9**	4.5	5.3**	5.5**
19	7.3	4.1*	4.1	9.4	9.2	6.7	7.0	5.1	5.9	7.4	6.6	4.9	4.2	5.0	5.1
21	7.0	4.0*	4.0	9.0	8.8	6.4	6.8	5.0	5.6**	6.9*	6.5	4.8	4.1*	4.8	5.0
22	6.9	4.0*	4.0	7.6**	7.9**	5.8**	6.7**	4.8**	5.7	6.5**	6.2**	4.6**	4.3	5.3**	5.1
23	7.5**	4.4**	4.5**	9.0	8.8	6.7	7.2	5.5**	6.1**	7.4	6.7	5.2	4.4	5.2*	5.5**
27	7.0	4.2	4.2	9.2	9.1	6.3	6.8	5.2	5.9	7.1	6.8**	5.4**	4.4	5.4**	5.5**
28	7.6**	4.4*	4.2	10.1**	9.7**	7.4**	8.0**	5.8**	6.8**	7.5**	7.3**	5.7**	4.3	5.9**	6.2**
29	7.0	4.2	4.1	8.9*	8.7**	6.3	6.8	5.1	5.7	7.0*	6.5	5.0	4.4	4.9	5.1
32	7.2	4.3*	4.1	9.1	9.0	6.5	7.0	5.2	5.8	7.4	6.6	5.1	4.4	5.0	5.2
33	7.3	4.1*	3.9**	9.4	9.4	6.6	7.0	5.1	5.8	7.3	6.6	4.9	4.2	4.9	5.1
34	7.3	4.4**	4.2	9.4	9.2	6.7	6.9	5.2	6.0*	7.3	6.6	5.1	4.3	5.0	5.2
35	7.6**	4.2	4.1	9.0	8.9	7.0**	7.1	5.6**	5.9	7.5**	6.4*	4.9	4.3	4.9	5.0
36	7.2	4.1	4.0	9.3	9.3	6.6	7.0	5.2	5.9	7.3	6.8*	5.1	4.3	5.0	5.2
38	6.2**	4.0*	4.0	8.7**	8.6**	6.3	6.5**	5.3*	5.8	6.5**	6.1**	5.0	4.3	4.9	5.1
39	6.9	4.7**	4.6**	8.4**	8.3**	6.8*	6.8	6.5**	6.5**	6.8**	6.7	6.3**	4.9**	5.2*	5.5**
43	7.1	4.1*	4.0	9.3	9.3	6.5	7.0	5.1	5.8	7.3	6.4*	4.8	4.1*	4.9	5.0
44	1.2**	4.2	4.6**	8.9*	8.9	7.4**	7.3**	6.1**	6.6**	7.3	7.0**	6.5**	5.2**	5.7**	6.1**
46	6.7**	5.7**	4.1	9.2	9.0	6.8*	7.0	5.9**	6.0*	6.6**	6.6	5.4**	4.3	5.6**	4.3**
47	6.9*	4.5**	4.1	9.0	8.9	6.4	6.5**	5.0	5.5**	7.2	6.2**	4.8	4.2	5.0	5.0
48	7.4*	4.2	4.1	9.3	9.2	6.7	7.0	5.1	5.8	7.4	6.5	4.9	4.2	4.9	5.1
51	6.5**	4.3*	-	8.8*	7.4**	6.2**	6.5**	5.8**	6.2**	6.7**	6.6	-	-	6.1**	6.2**

pH-KCl

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
52	6.6**	4.2	4.1	9.1	9.2	6.8*	6.9	5.4*	5.8	7.0*	6.6	5.3**	4.4	4.9	5.2
54	7.3	4.2	4.2	9.3	9.3	6.6	7.1	5.3*	5.9	7.3	6.7	5.1	4.3	5.0	5.2
60	7.3	4.1*	3.9**	9.4	9.4	6.4	6.9	5.1	5.8	7.2	6.6	4.9	4.1**	4.9	5.1
62	7.0	4.2	4.1	9.1	8.7*	6.5	6.9	5.3*	5.8	7.0*	6.6	5.2	4.3	4.8	5.2
63	7.2	4.1*	4.0	9.4	9.4	6.7	7.0	5.1	5.8	7.3	6.6	4.9	4.1*	4.9	5.1
64	7.3	4.2	4.1	9.4	9.1	6.6	7.1	5.1	5.8	7.3	6.6	5.0	4.2	5.0	5.2
67	7.3	4.2	4.1	9.4	9.4	6.5	7.0	5.2	5.9	7.3	6.6	5.0	4.3	5.0	5.2
68	6.9	4.2	4.1	9.3	9.2	6.5	6.6**	5.2	5.9	7.1	6.6	5.0	4.3	5.1*	5.2
73	7.1	4.3*	4.1	9.1	8.7*	6.4	6.8	5.2	5.8	7.1	6.5	5.0	4.3	5.1*	5.1
74	7.1	4.2	4.0	9.3	9.0	6.2*	6.8**	5.0	5.7	7.0	6.4*	4.9	4.1	4.9	5.1
75	7.3	4.2	4.1	9.3	9.3	6.5	7.1	5.3*	6.1**	7.4	6.6	5.0	4.3	5.0	5.2
MED1	7.10	4.20	4.10	9.20	9.10	6.57	6.99	5.20	5.86	7.15	6.60	5.00	4.30	5.00	5.10
MAD1	0.20	0.10	0.07	0.20	0.20	0.17	0.11	0.10	0.11	0.15	0.10	0.10	0.10	0.10	0.10
MED2	7.12	4.20	4.10	9.20	9.10	6.50	7.00	5.10	5.80	7.27	6.60	5.00	4.30	4.92	5.10
MAD2	0.13	0.05	0.06	0.12	0.16	0.10	0.10	0.10	0.08	0.13	0.07	0.10	0.10	0.08	0.10

pH-$CaCl_2$

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
26	7.5*	4.1	4.0	8.7**	8.6	7.8*	7.6**	5.8*	6.2**	7.0**	7.0	5.1	4.2	5.5	5.7**
31	7.7	4.3	4.2	9.6	8.4*	7.7*	7.9	5.7	6.4	7.2**	7.2	5.2	4.2	5.6	5.8*
33	7.8	4.1	4.1	9.7	8.7	7.4	7.9	5.5	6.5	7.5	7.3	5.1	4.1	5.7	6.0
34	7.8	4.4	4.4	9.6	8.8*	7.4	7.9	5.6	6.6	7.4	7.2	5.0	4.3	5.8	6.0
39	7.3**	4.2	4.0	9.4*	8.6	7.3	7.7**	5.9**	6.4	6.9**	6.9**	5.2	4.2	5.5	5.8*
42	7.6	4.8**	4.6**	9.8	9.1**	7.7*	8.1**	6.7**	7.3**	7.7**	7.6**	5.9**	4.7**	6.0**	6.2*
45	7.7	4.1	4.3	9.8	8.7	7.7*	8.1*	6.0**	6.4	7.5	7.4*	5.3	4.1	5.6	6.0
47	6.7**	4.0	4.6**	7.0**	7.2**	6.2**	6.1**	5.0**	5.9**	6.3**	6.1**	5.0	4.5**	5.5	5.4**
49	7.7	4.0	4.2	9.8	8.6	7.4	7.9	5.7	6.7	7.5	7.3	5.2	4.3	5.8	6.1
50	7.6	4.3	4.3	9.0**	8.4*	6.9**	8.0*	5.8*	6.5	7.3	7.2	5.3	4.3	5.7	5.9
53	7.7	4.3	4.3	9.0**	8.6	7.4	7.9	5.6	6.6	7.7**	7.3	5.1	4.4*	5.8	6.0
55	7.6	4.1	4.0**	8.7**	7.7**	6.9**	7.8*	5.5	6.2**	7.3	6.9**	5.1	4.1	5.6	5.7**
62	7.6	4.2	4.1	9.8	9.1**	7.4	7.8*	5.8*	6.5	7.4	7.3	5.4*	4.2	5.7	6.1
64	7.8	4.1	4.2	9.7	8.7	7.2*	7.8*	5.5	6.6	7.4	7.1	5.2	4.9**	5.9	6.1
65	7.7	4.3	4.2	9.1**	7.9**	7.4	7.9	5.5	6.5	7.4	7.3	4.7**	4.0	5.1**	6.0
67	7.9**	4.2	4.2	9.6	8.8*	7.4	7.9	5.5	6.6	7.5	7.2	5.2	4.2	5.8	6.0
76	7.7	3.9**	4.0	9.0**	8.9*	7.2*	7.6**	5.1**	6.2**	7.0**	7.1	5.0	4.0	5.6	5.8*
MED1	7.70	4.20	4.20	9.60	8.60	7.40	7.90	5.60	6.50	7.40	7.20	5.20	4.20	5.70	6.00
MAD1	0.10	0.10	0.10	0.20	0.20	0.20	0.10	0.15	0.10	0.10	0.10	0.10	0.10	0.10	0.10
MED2	7.70	4.20	4.20	9.70	8.63	7.40	7.90	5.60	6.50	7.40	7.20	5.20	4.20	5.70	6.00
MAD2	0.07	0.10	0.10	0.10	0.05	0.07	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.08

Exch.K

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	0.35**	0.17**	0.09**	0.50**	0.58**	0.87**	1.02	1.74	1.26*	0.59	0.48*	0.12*	0.07**	0.19**	0.14*
4	0.01**	0.04	0.02	0.06**	0.02*	0.53**	0.41**	1.73	1.36	0.29**	0.24**	0.06	0.02	0.20*	0.17*
5	0.21	0.03	0.02	0.17*	0.05	1.23	1.19	2.26	1.75	0.63	0.41	0.05	0.01	0.26	0.18
6	0.20	0.10**	0.10**	0.20*	0.10*	1.30	1.00	2.10	1.60	0.60	0.40	0.10	0.00	0.20*	0.10**
7	0.20	0.00*	0.00	0.20*	0.00**	1.40	1.20	1.90	1.90*	0.60	0.30*	0.00**	0.00	0.30	0.20
9	0.24	0.04	0.03	0.28	0.04	1.04	0.89	2.10	1.06**	0.54	0.28**	0.09	0.05**	0.32	0.24
10	0.01**	0.01	0.01	0.30	0.01**	1.24	1.22	2.25	1.61	0.63	0.41	0.01*	0.01	0.29	0.23
12	0.26	0.05	0.03	0.30	0.06	1.19	0.99	2.03	1.55	0.58	0.37	0.06	0.02	0.28	0.22
14	0.30	0.04	0.04	0.30	0.04	1.40	1.30	1.90	1.70	0.60	0.40	0.04	0.04	0.30	0.20
15	0.22	0.05	0.02	0.26	0.06	1.13	0.96	2.08	1.55	0.56	0.40	0.07	0.03	0.26	0.23
16	0.30	0.44**	0.24**	0.46**	0.08	1.23	0.29**	3.63**	2.94**	0.74**	0.50*	0.08	0.02	0.34*	0.22
17	0.20	0.00*	0.00	0.20*	0.10*	0.80**	0.70**	1.60**	0.80**	0.50*	0.30*	0.10	0.10**	0.20*	0.10**
19	1.77**	0.05	0.02	1.66**	0.71**	2.30**	3.24**	2.59**	2.13**	1.09**	0.62**	0.08	0.02	0.49**	0.37**
21	0.20	0.05	0.03	0.27	0.05	1.12	1.04	2.27	1.63	0.55	0.35	0.03	0.01	0.20*	0.19
22	0.08**	0.03	0.02	0.06**	0.03	0.24**	0.22**	0.36**	0.31**	0.13**	0.10**	0.02*	0.02	0.07**	0.07**
23	0.30	0.00*	0.00	0.30	0.10*	1.20	1.20	2.00	1.50	0.70**	0.40	0.10	0.00	0.30	0.20
26	0.31	0.02	0.02	0.36*	0.12**	1.33	1.35	1.25**	1.05**	0.69**	0.46	0.02*	0.02	0.18**	0.12**
27	0.45**	0.04	0.02	0.48**	0.15**	1.29	1.45**	2.39	1.87	0.82**	0.46	0.07	0.01	0.29	0.23
28	0.23	0.05	0.01	0.29	0.05	1.23	1.34	2.13	1.67	0.58	0.39	0.06	0.02	0.27	0.22
29	0.26	0.01	0.02	0.68**	0.20**	1.06	1.22	1.85	1.55	0.66*	0.32*	0.02*	0.01	0.26	0.23
30	0.22	0.02	0.02	0.27	0.05	1.40	1.33	2.30	1.76	0.60	0.42	0.10	0.05**	0.29	0.20
31	0.20	0.03	0.01	0.22*	0.04	0.96*	0.92	1.82	1.37	0.55	0.35	0.06	0.01	0.23*	0.19
32	0.80**	0.00*	0.00	0.10**	0.00**	0.70**	0.50**	1.80	1.40	0.40**	0.20**	0.00**	0.00	0.20*	0.20
33	0.16	0.10**	0.02	0.20*	0.04	1.25	1.06	4.64**	1.47	0.44**	0.29**	0.06	0.03	0.20*	0.16*
34	0.26	0.05	0.03	0.30	0.05	1.40	1.30	2.40	1.80	0.63	0.43	0.08	0.03	0.31	0.24
37	0.40**	0.10**	0.10**	0.20*	0.10*	1.00*	0.90	0.60**	0.60**	0.40**	0.30*	0.10	0.10**	0.10**	0.10**
38	0.30	0.10**	0.10**	0.30	0.10*	1.30	1.20	1.90	1.50	0.60	0.50*	0.10	0.10**	0.30	0.30**
39	0.26	0.06	0.05**	0.30	0.10*	0.89**	0.84*	1.70*	1.39	0.58	0.41	0.10	0.04	0.30	0.24
40	0.21	0.04	0.02	0.26	0.05	1.11	1.03	2.15	1.69	0.59	0.39	0.07	0.02	0.28	0.22
41	0.20	-	-	0.30	0.00**	1.10	1.10	-	-	-	-	-	-	-	-
43	0.20	0.02	0.00	0.21*	0.00**	1.30	0.97	2.07	1.91*	0.49**	0.00**	0.03	0.02	0.26	0.09**
44	0.30	0.10**	0.10**	0.30	0.10*	1.20	1.20	1.50**	1.40	0.50*	0.40	0.10	0.00	0.30	0.20
45	0.20	0.00*	0.00	0.20*	0.00**	1.00*	0.90	1.80	1.40	0.50*	0.30*	0.10	0.00	0.20*	0.20
46	0.17	0.04	0.02	0.21*	0.05	0.92*	0.84*	2.02	1.60	0.42**	0.29**	0.05	0.03	0.22*	0.17*
47	0.25	0.02	0.22**	0.38*	0.07	1.09	1.13	0.64**	0.55**	0.54	0.28**	0.06	0.05**	0.05**	0.04**
48	0.20	0.00*	0.00	0.20*	0.00**	0.80**	0.60**	1.90	1.60	0.50*	0.40	0.00**	0.00	0.20*	0.20
49	0.00**	0.00*	0.00	0.00**	0.00**	0.00**	0.00**	0.50**	0.50**	0.00**	0.00**	0.00**	0.00	0.10**	0.00**
50	0.24	0.04	0.00	0.26	0.05	1.22	1.12	2.39	1.80	0.62	0.40	0.10	0.07**	0.27	0.20
51	0.30	0.04	0.03	0.35*	0.07	1.50**	1.30	2.54**	1.90*	0.74**	0.45	0.07	0.26**	0.29	0.22
52	0.40**	0.22**	0.18**	0.37*	0.46**	1.47*	1.36	2.29	1.79	0.69**	0.49*	0.16**	0.13**	0.37**	0.33**
53	0.25	0.02	0.00	0.26	0.09	1.36	1.37*	2.03	2.00**	0.63	0.43	0.04	0.00	0.29	0.25
54	0.23	0.03	0.02	0.27	0.04	1.20	1.10	2.20	1.70	0.60	0.40	0.06	0.02	0.27	0.21
55	0.27	0.06	0.03	0.29	0.06	1.30	1.16	2.54**	1.84	0.62	0.42	0.05	0.03	0.34*	0.23
59	0.33	0.08*	0.01	0.30	0.04	1.44*	1.33	2.49*	1.83	0.75**	0.50*	0.08	0.03	0.24	0.19
60	0.25	0.04	0.01	0.29	0.04	1.26	1.22	2.52*	2.01**	0.61	0.42	0.07	0.01	0.28	0.23
61	0.31	-	-	0.29	0.06	1.25	1.19	-	-	0.62	0.43	-	-	-	-
62	0.22	0.03	0.01	0.25	0.04	1.18	1.13	2.16	1.62	0.57	0.36	0.05	0.01	0.25	0.19
63	0.33	0.11**	0.08**	0.35*	0.07	1.43	1.41**	2.39	1.79	0.51*	0.39	0.13*	0.08**	0.34*	0.29**
64	0.27	0.06	0.04	0.30	0.07	1.05	0.97	2.24	1.66	0.59	0.41	0.09	0.04	0.32	0.25
65	-	0.29**	0.26**	-	-	-	-	7.03**	1.59	-	-	0.15**	0.28**	0.46**	0.42**

Exch.K

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
66	0.33	-	-	0.37*	0.18**	-	-	-	-	0.81**	0.59**	-	-	-	0.31**
68	0.07**	0.03	0.01	0.15**	0.07	0.47**	0.39**	1.40**	0.92**	0.16**	0.06**	0.06	0.02	0.12**	0.10**
70	0.30	0.08*	0.03	0.03**	0.08	1.00*	0.95	2.15	1.85	0.66*	0.48*	0.09	0.03	0.30	0.25
73	0.30	0.10**	0.05**	0.31	0.08	1.09	1.05	2.08	1.51	0.61	0.41	0.10	0.07**	0.32	0.26*
74	-	0.18**	0.09**	-	-	-	-	2.08	-	-	-	0.15**	0.10**	0.40**	0.40**
76	0.11**	0.03	0.02	0.26	0.08	0.87**	0.81*	1.91	1.61	0.51*	0.24**	0.07	0.01	0.31	0.25
78	0.24	0.04	0.02	0.25	0.04	1.12	1.07	1.91	1.51	0.54	0.36	0.06	0.02	0.24	0.18
MED1	0.25	0.04	0.02	0.28	0.06	1.20	1.09	2.08	1.60	0.59	0.40	0.07	0.02	0.27	0.20
MAD1	0.05	0.02	0.01	0.06	0.02	0.14	0.15	0.23	0.20	0.05	0.05	0.03	0.01	0.04	0.03
MED2	0.25	0.04	0.02	0.28	0.06	1.23	1.12	2.08	1.61	0.59	0.40	0.07	0.02	0.28	0.21
MAD2	0.05	0.01	0.01	0.03	0.02	0.11	0.12	0.18	0.14	0.03	0.03	0.02	0.01	0.02	0.02

Exch.Na

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	1.83*	0.03	0.01	11.08	1.62**	0.97*	5.21**	0.09	0.19*	0.21*	0.21*	0.02	0.01	0.11	0.10
4	1.21**	0.06	0.02	5.49**	1.76**	0.98*	6.16**	0.35**	0.35**	0.39**	0.15	0.05	0.02	0.11	0.10
5	0.65**	0.04	0.01	8.27**	1.28**	0.62	8.29	0.04	0.10	0.11	0.12	0.07	0.01	0.07	0.07
6	1.20**	0.00	0.00	9.60*	2.20*	0.70	7.80	0.10	0.10	0.10	0.10	0.10*	0.00	0.10	0.10
7	0.60**	0.30**	0.20**	9.60*	1.60**	0.90	8.70	0.10	0.20*	0.40**	0.40**	0.40**	0.00	0.20**	0.10
9	2.47	0.21**	0.23**	10.92	1.77**	0.89	3.75**	0.33**	0.29**	0.27**	0.23*	0.20**	0.21**	0.25**	0.23**
10	2.94	0.01	0.01	15.90**	2.90	0.64	9.01	0.01	0.01*	0.01**	0.01**	0.01	0.01	0.43**	0.44**
12	8.94**	0.10*	0.06**	12.95	8.90**	0.51**	9.04	0.06	0.09	0.12	0.15	0.10*	0.05*	0.17*	0.16*
14	1.80*	0.04	0.04*	12.40	2.60	1.30**	10.30	0.04	0.10	0.20*	0.20*	0.04	0.04*	0.10	0.10
15	3.26	0.28**	0.11**	5.25**	2.78	0.88	10.29	0.19*	0.19*	0.19*	0.25*	0.25**	0.14**	0.15	0.23**
16	2.92	0.03	0.01	2.72**	2.77	0.52**	2.08**	0.03	0.07	0.07	0.09	0.04	0.05*	0.06	0.07
17	3.20	0.30**	0.10**	10.30*	3.10	0.90	7.90	0.10	0.10	0.10	0.20*	0.20**	0.20**	0.10	0.20**
19	3.14	0.05	0.01	15.45**	3.17	0.91	10.89	0.04	0.09	0.13	0.13	0.06	0.02	0.10	0.08
21	2.02*	0.03	0.01	11.89	1.79**	0.34**	9.03	0.04	0.06	0.09	0.10	0.04	0.01	0.06	0.06
22	3.10	1.01**	0.87**	7.50**	1.49**	0.82	8.63	1.16**	1.22**	0.96**	1.19**	0.87**	0.96**	1.16**	1.13**
23	2.40	0.00	0.00	9.80*	1.80**	0.80	9.30	0.10	0.10	0.10	0.10	0.10*	0.00	0.10	0.10
26	2.06*	0.22**	0.20**	12.47	4.44**	0.76	9.42	0.02	0.04	0.08	0.06	0.02	0.18**	0.04	0.04
27	3.08	0.03	0.01	13.58	2.92	0.67	9.48	0.05	0.10	0.09	0.09	0.03	0.01	0.05	0.05
28	3.30	0.05	0.02	13.72	3.14	0.86	11.67**	0.03	0.07	0.08	0.12	0.07	0.02	0.07	0.07
29	4.23**	0.09*	0.02	12.50	3.82**	1.10**	8.62	0.07	0.09	0.10	0.11	0.08	0.02	0.09	0.10
31	2.55	0.02	0.00	12.04	2.53	0.61*	8.07	0.02	0.07	0.07	0.08	0.05	0.00	0.05	0.06
32	2.80	0.00	0.00	11.80	2.80	0.70	7.60	0.00	0.00*	0.10	0.10	0.00*	0.00	0.10	0.10
33	3.06	0.03	0.01	13.20	2.84	1.15**	9.75	0.03	0.05	0.07	0.08	0.04	0.01	0.05	0.05
34	3.70*	0.06	0.02	13.50	3.10	1.30**	11.40*	0.15*	0.20*	0.29**	0.23*	0.08	0.02	0.17*	0.14*
37	0.60**	0.30**	0.10**	0.10**	-	0.70	6.00**	0.30**	0.20*	0.20*	0.40**	0.30**	0.30**	0.20**	0.30**
38	2.10	0.40**	0.20**	10.30*	2.20*	1.60**	10.60	0.30**	0.30**	0.50**	0.50**	0.40**	0.50**	0.50**	0.50**
39	3.68	0.23**	0.23**	15.00*	3.47*	1.12**	10.60	0.40**	0.40**	0.40**	0.45**	0.24**	0.17**	0.49**	0.35**
40	2.72	0.03	0.01	9.96*	2.70	0.68	9.18	0.03	0.07	0.07	0.10	0.05	0.01	0.06	0.06
41	1.30**	-	-	13.20	2.70	0.80	9.00	-	-	-	-	-	-	-	-
43	0.70**	0.07	0.05*	5.00**	0.40**	0.52**	6.95*	0.09	0.10	0.09	0.12	0.06	0.05*	0.08	0.08

Exch.Na

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
44	5.30**	1.00**	0.80**	8.40*	3.40*	2.50**	11.70**	0.50**	1.40**	0.50**	0.80**	0.80**	0.60**	1.00**	1.00**
45	3.20	0.00	0.00	13.20	2.90	1.00*	8.50	0.10	0.20*	0.20*	0.20*	0.10*	0.00	0.10	0.10
46	2.74	0.03	0.01	12.83	2.39	0.72	8.26	0.07	0.12	0.15	0.14	0.05	0.02	0.10	0.09
47	2.10	0.01	0.21**	4.31**	1.03**	0.23**	1.84**	0.19*	0.27**	0.14	0.14	0.11*	0.12**	0.12	0.12
48	1.00**	0.00	0.00	8.20**	1.60**	0.50**	5.90**	0.00	0.00*	0.20*	0.00**	0.00*	0.00	0.00**	0.00**
49	0.70**	0.00	0.00	13.00	2.90	0.70	8.30	0.00	0.00*	0.00**	0.00**	0.00*	0.00	0.00**	0.00**
50	2.48	0.00	0.00	8.65*	2.35*	0.71	7.18	0.00	0.00*	0.05	0.08	0.00*	0.00	0.04	0.00**
51	1.66*	0.01	0.03*	8.00**	1.60**	0.67	5.72**	0.06	0.12	0.16	0.13	0.03	0.01	0.06	0.06
52	4.25**	0.80**	0.54**	14.30	3.52**	1.86**	10.77	0.67**	0.93**	0.66**	0.68**	0.58**	0.47**	0.74**	0.74**
53	2.87	0.14*	0.11**	11.40	2.51	0.78	10.59	0.12	0.13	0.11	0.14	0.09	0.04*	0.09	0.10
54	2.70	0.02	0.01	13.00	2.70	0.70	9.10	0.02	0.06	0.08	0.09	0.05	0.01	0.06	0.06
55	3.15	0.03	0.00	16.34**	3.20*	0.78	10.79	0.03	0.07	0.10	0.09	0.04	0.09**	0.10	0.08
59	2.20	0.18**	0.15**	13.50	2.04*	0.71	10.00	0.10	0.18*	0.19*	0.27**	0.04	0.19**	0.19*	0.12
60	3.64	0.01	0.00	13.30	2.65	0.87	10.20	0.07	0.10	0.15	0.13	0.03	0.00	0.07	0.05
61	3.39	-	-	13.30	2.61	0.85	10.20	-	-	0.13	0.14	-	-	-	-
62	2.89	0.00	0.00	13.30	2.74	0.75	9.31	0.00	0.01*	0.03*	0.04*	0.00*	0.00	0.00**	0.00**
63	1.47*	0.20**	0.16**	7.34**	1.59**	0.86	7.21	0.18*	0.20*	0.22*	0.20*	0.20**	0.16**	0.21**	0.21**
64	3.31	0.11*	0.07**	13.67	3.09	1.63**	10.85	1.65**	1.41**	0.54**	0.41**	0.16**	0.08**	0.32**	0.27**
66	2.64	-	-	12.52	2.83	-	-	-	-	0.09	0.11	-	-	-	0.08
68	1.33**	0.09*	0.02	10.78	2.60	0.85	11.24	0.06	0.09	0.08	0.11	0.06	0.01	0.07	0.07
70	2.90	0.20**	0.08**	9.61*	2.85	0.94	6.72*	0.10	0.20*	0.21*	0.20*	0.08	0.05*	0.11	0.90**
73	3.38	0.23**	0.17**	14.89*	3.08	1.22**	11.23	0.36**	0.30**	0.42**	0.65**	0.33**	0.16**	0.32**	0.28**
74	-	0.22**	0.14**	-	-	-	-	0.15*	-	-	-	0.22**	0.14**	0.52**	0.48**
76	1.96*	0.09*	0.07**	8.97*	1.94*	0.68	5.53**	0.10	0.14	0.14	0.16	0.13*	0.05*	0.11	0.13*
78	3.39	0.24**	0.26**	10.91	2.55	1.57**	8.59	0.31**	0.35**	0.46**	0.31**	0.18**	0.20**	0.22**	0.25**
MED1	2.73	0.06	0.02	11.84	2.70	0.80	9.01	0.09	0.10	0.13	0.14	0.07	0.02	0.10	0.10
MAD1	0.64	0.06	0.02	1.78	0.40	0.12	1.29	0.06	0.08	0.06	0.06	0.04	0.02	0.05	0.04
MED2	2.88	0.03	0.01	12.48	2.78	0.78	9.14	0.06	0.10	0.10	0.12	0.05	0.01	0.10	0.08
MAD2	0.40	0.02	0.01	1.09	0.20	0.08	1.06	0.04	0.04	0.03	0.03	0.02	0.01	0.03	0.02

Exch.Ca

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	42.8	0.4	0.2*	15.6	13.2	45.8	43.0	11.1	14.5	21.0	13.2	2.3	0.2*	7.3**	7.5*
4	50.7	0.8*	0.7**	2.3	2.1	49.8	41.2	11.4	15.5	15.2	13.7	2.4	0.5**	10.5	8.8
5	-	0.4	0.0	-	-	62.6**	-	13.0	16.2	-	15.2*	2.2	0.1	10.9	8.6
6	6.0	1.0*	0.2*	0.0	0.0	46.9	43.0	12.3	15.0	11.1	13.6	2.3	0.1	10.3	8.3
7	104.3	1.1**	0.2*	33.7	27.1*	60.0*	51.2*	12.7	16.4	35.4**	14.5	2.4	0.0*	13.6**	10.0*
9	120.2	0.1	0.1	2.9	2.7	101.7**	9.9**	3.4**	2.9**	6.9**	2.2**	0.5**	0.1	2.9**	2.3**
10	10.0	1.7**	0.1	34.0	24.4	55.1	49.5*	12.3	16.8	26.3	13.8	0.5**	0.4**	8.7**	5.5**
12	119.5	0.4	0.1	56.5**	48.6**	59.1*	46.0	11.2	14.3	39.1**	13.3	1.9*	0.1	10.1	9.4*
14	75.8	0.2	0.2*	24.9	17.8	53.4	46.1	12.8	15.8	21.0	14.4	2.4	0.2*	10.5	8.6
15	95.8	0.4	0.2*	17.2	16.6	54.6	49.9*	11.7	17.0	26.0	15.4*	2.1	0.1	10.2	8.7
16	46.2	0.3	0.1	9.7	8.6	11.2**	9.0**	12.4	16.8	22.5	14.7	2.1	0.1	10.8	9.3*
17	35.0	0.5	0.1	14.2	7.5	33.2**	23.7**	6.7**	6.6**	10.2	8.7**	1.3**	0.0*	4.7**	3.8**

Exch.Ca

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
19	59.5	0.2	0.0	4.3	4.4	51.0	43.7	10.9*	14.4	16.1	13.1	1.5**	0.1	9.7	7.3*
21	162.3**	0.2	0.0	57.1**	54.6**	59.6*	52.6*	13.5	16.7	36.1**	15.5*	2.1	0.0*	11.0*	8.7
22	3.6	0.3	0.4**	0.6	0.8	-	-	10.0**	-	9.1	11.1*	1.5**	0.3*	7.3**	10.3**
23	-	3.2**	0.3**	0.0	0.0	53.9	41.1	12.9	15.2	16.3	13.1	2.1	0.1	10.1	8.5
26	210.7**	0.4	0.0	173.0**	136.1**	61.9**	72.9**	10.6*	14.5	76.8**	18.7**	2.0	0.2	9.8	8.2
27	115.6	0.7	0.0	26.5	18.9	58.8*	56.3**	13.7*	16.4	40.4**	16.4**	2.4	0.1	11.4*	9.5*
28	99.9	0.3	0.1	35.9*	28.0*	49.7	42.9	9.3**	15.1	29.6*	14.9	1.5**	0.1	10.0	8.3
29	32.4	3.6**	3.2**	43.2*	30.4*	53.6	44.6	15.8**	19.2**	20.2	16.2**	4.4**	1.8**	13.2**	10.6**
30	184.1**	0.5	0.1	91.3**	79.9**	67.0**	61.3**	13.4	17.2*	49.4**	32.9**	2.2	0.1	11.2*	9.0
31	71.0	0.3	0.1	14.6	15.4	52.0	43.2	11.1*	14.9	19.8	13.7	2.0	0.1	9.9	8.4
32	20.4	0.3	0.0	12.3	6.4	49.3	41.2	12.3	14.5	16.7	13.4	2.6*	0.0*	10.6	8.8
33	66.3	0.4	0.1	24.4	22.1	55.5	48.6	11.2	13.4*	25.6	12.9	1.7**	0.1	9.3*	7.7*
34	-	1.0*	0.1	-	-	-	-	14.0**	43.0**	-	-	3.5**	0.2	12.4**	7.4*
37	39.4	1.0*	0.0	0.0	0.3	46.2	35.5*	12.1	11.7**	15.2	14.1	2.2	0.1	10.6	8.6
38	-	0.3	0.0	-	-	-	-	12.3	15.8	-	-	1.9	0.3**	11.1*	8.9
39	81.6	0.6	0.4**	26.1	19.3	46.8	38.4	10.5*	14.0*	22.8	13.2	2.3	0.2*	23.5**	19.2**
40	54.0	0.3	0.0	15.2	15.8	36.2**	32.9*	12.0	15.8	22.2	14.7	2.2	0.1	10.6	8.9
41	117.0	-	-	43.2*	31.8*	51.6	44.6	-	-	-	-	-	-	-	-
43	74.0	0.4	0.0	13.0	11.7	44.8	37.9*	9.4**	11.0**	11.7	10.7*	2.0	0.2*	8.8**	7.5*
44	1.5	1.8**	0.0	0.5	0.0	37.0**	26.0**	5.3**	7.2**	8.2	7.2**	1.7**	0.4**	7.7**	2.6**
45	44.9	0.8*	0.2*	1.4	1.3	26.2**	21.4**	10.4*	13.4*	7.9	11.9	2.0	0.2*	8.7**	6.9*
46	62.4	0.2	0.0	13.0	12.6	33.2**	29.4**	7.6**	10.2**	18.3	9.7**	1.5**	0.1	6.8**	5.6**
47	12.0	2.0**	5.4**	11.4	1.4	31.0**	37.8*	5.0**	8.4**	7.0**	6.8**	1.7*	3.4**	3.1**	2.6**
48	10.3	0.1	0.1	2.0	1.7	36.9**	27.8**	12.0	15.8	7.3*	14.4	2.1	0.1	10.6	8.5
49	10.7	0.0*	0.0	4.2	1.1	34.4**	29.4**	12.3	14.6	14.5	11.4*	2.5	0.0*	9.8	8.8
50	14.5	1.0*	0.1	0.3	0.4	50.3	43.5	12.4	15.8	14.3	12.5	2.4	0.5**	10.4	8.5
52	120.1	2.4**	2.3**	48.1**	36.1**	57.2	50.3*	13.5	16.4	31.4*	15.0*	3.6**	1.6**	11.6**	9.4*
53	14.4	0.8*	0.1	0.3	0.6	54.5	46.6	11.7	15.7	15.4	13.2	2.4	0.5**	10.2	8.8
54	138.0*	0.5	0.0	63.0**	51.0**	52.0	51.0*	12.6	15.2	40.0**	13.8	2.3	0.1	10.0	8.2
55	187.9**	0.5	0.0	110.8**	75.2**	73.9**	65.6**	13.8*	16.1	37.4**	14.7	2.6	0.3**	10.7	8.6
59	53.2	0.6	0.1	16.2	12.4	50.5	45.9	15.7**	19.0**	23.0	17.2**	1.3**	0.1	13.7**	11.9**
60	108.0	0.8*	0.2	58.0**	40.8**	45.6	42.4	10.0**	12.8**	26.6	12.0	2.0	0.1	8.9*	7.4*
61	98.5	-	-	19.8	12.8	62.0**	53.0*	-	-	19.2	11.7*	-	-	-	-
62	198.0**	3.5**	0.1	80.6**	64.6**	72.0**	64.7**	16.6**	19.7**	45.4**	18.5**	3.1**	0.2	13.1**	10.9**
63	3.5	1.0*	0.7**	1.5	1.0	6.1**	-	12.3	15.7	14.3	12.8	3.5**	0.8**	10.6	1.9**
64	1.2	0.2	0.1	2.7	2.3	10.7**	8.0**	1.8**	2.6**	4.5**	2.4**	0.3**	0.0	1.7**	1.3**
65	-	0.9*	0.4**	-	-	-	-	12.7	16.2	-	-	2.3	0.8**	10.1	8.9
66	109.5	-	-	31.3	24.3	-	-	-	-	25.1	12.9	-	-	-	7.8*
68	28.0	0.5	0.1	4.7	2.0	48.0	32.0*	11.6	12.1**	12.5	12.6	2.1	0.1	10.6	8.7
73	79.2	0.5	0.3*	33.3	26.3*	49.2	44.6	12.7	14.9	28.5*	25.4**	2.6*	0.2*	9.6	7.3*
74	-	0.3	0.1	-	-	-	-	12.1	-	-	-	2.4	0.1	9.7	7.6*
76	18.9	0.5	0.2*	17.2	9.3	47.8	39.9	12.5	14.9	17.1	12.9	2.3	0.1	10.0	8.1
78	-	0.6	0.5**	-	-	-	-	11.0*	14.2	-	-	2.2	0.4**	10.0	8.2
MED1	60.94	0.50	0.10	15.59	12.80	50.40	43.13	12.08	15.14	19.98	13.40	2.18	0.11	10.15	8.50
MAD1	44.90	0.26	0.08	14.08	11.50	5.35	6.58	0.94	1.10	6.47	1.33	0.23	0.07	0.64	0.82
MED2	53.20	0.42	0.07	13.00	8.99	51.30	43.60	12.30	15.59	17.70	13.32	2.22	0.10	10.26	8.56
MAD2	38.75	0.17	0.05	11.20	7.79	3.32	2.74	0.60	0.76	4.93	0.80	0.17	0.04	0.34	0.36

Exch.Mg

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	3.41	0.06	0.03	2.13	2.46	20.21**	24.56*	2.77**	4.99**	2.37	1.83*	0.35**	0.03	0.52**	0.68**
4	4.90	0.00**	0.00	0.90	0.50	26.00	27.70	2.70**	5.40**	2.30	1.70*	0.20**	0.00	0.50**	1.40**
5	3.27	0.05	0.01	11.60**	16.10**	30.00	33.50*	3.61	6.75	4.98**	2.72*	0.41	0.02	0.88	0.90
6	4.00	0.10*	0.00	6.50**	6.60*	28.00	30.70	3.60	6.50	3.20	2.30	0.40	0.00	0.80	0.90
7	4.60	0.20**	0.00	6.00*	8.20**	33.40**	34.90*	3.50	6.70	3.90*	2.40	0.40	0.00	0.90	9.40**
9	3.16	0.05	0.03	1.21	0.92	9.86**	11.34**	2.59**	3.03**	2.11	0.85**	0.26**	0.03	0.82	0.81*
10	3.44	0.50**	0.21**	3.82	5.26*	26.31	27.80	3.40	6.27*	3.05	2.20	0.38	0.02	0.82	0.87
12	4.57	0.08	0.01	6.42**	6.99*	26.95	30.31	3.59	6.47	3.30	2.27	0.44	0.04	0.85	0.89
14	3.80	0.20**	0.20**	3.30	2.80	30.80*	34.70*	3.70*	6.70	3.30	3.30**	0.40	0.20**	1.20**	1.60**
15	0.30**	0.30**	0.00	1.70	0.50	28.00	30.20	3.00**	5.20**	1.20**	1.00**	0.30**	0.00	0.70**	0.70**
16	4.05	0.05	0.02	1.67	1.74	28.70	6.63**	3.58	6.67	2.82	2.44	0.42	0.03	0.72**	0.76*
17	3.50	0.10*	0.10**	1.50	1.70	17.20**	17.10**	2.50**	3.10**	1.90*	1.60**	0.30**	0.10**	0.30**	0.30**
19	3.93	0.08	0.04	1.45	1.21	29.70	32.70	3.96**	7.17**	2.58	2.10	0.53**	0.04	0.92	1.01*
21	6.60**	0.90**	0.75**	9.20**	12.40**	25.55	27.70	4.25**	7.00*	4.20**	1.60**	0.00**	0.00	0.30**	0.10**
22	4.25	0.03*	0.01	0.47	0.40	-	-	3.50	-	2.20	1.35**	0.22**	0.02	0.57**	0.70**
23	4.00	0.10*	0.00	0.90	0.70	28.80	29.30	4.00**	6.60	2.80	2.40	0.40	0.00	0.90	0.90
26	5.78**	0.04	0.04	19.32**	36.29**	32.26*	34.75*	3.32*	6.50	14.61**	5.39**	0.40	0.04	0.81	0.90
27	5.76**	0.05	0.01	7.08**	7.82**	35.98**	41.13**	4.60**	8.24**	4.28**	3.30**	0.47**	0.01	1.06**	1.15**
28	4.52	0.07	0.03	1.79	8.17**	21.88*	22.80*	3.51	7.14**	2.86	2.38	0.35**	0.02	0.73*	0.88
29	7.25**	2.46**	2.07**	9.75**	9.43**	18.00**	26.21	4.82**	9.00**	4.32**	4.11**	1.50**	2.29**	2.61**	3.50**
30	5.48**	0.03*	0.00	12.39**	13.61**	30.55	34.23*	3.63	6.91*	4.67**	2.65	0.41	0.00	0.89	0.94
31	3.96	0.05	0.02	2.17	3.06	25.00	28.12	3.42	6.35	2.87	2.43	0.43	0.02	0.83	0.87
32	4.00	0.10*	0.00	3.00	2.60	25.10	28.30	3.50	6.40	2.70	2.20	0.40	0.00	0.90	0.90
33	4.25	0.05	0.02	2.51	2.08	28.40	30.70	3.71*	6.43	3.34	2.52	0.38	0.02	0.88	0.93
34	-	0.09*	0.06*	-	-	-	-	3.60	6.40	-	-	0.46**	0.06*	0.79	0.92
37	10.10**	0.00**	0.60**	0.40	0.20	28.50	29.70	3.60	5.40**	3.10	1.20**	1.00**	0.50**	0.90	0.90
38	-	1.30**	1.50**	-	-	-	-	3.60	5.10**	-	-	1.00**	0.50**	1.10**	1.30**
39	3.88	0.05	0.01	4.03	5.43*	25.40	27.10	3.45	6.39	2.95	2.36	0.42	0.01	1.91**	1.91**
40	4.03	0.06	0.02	1.93	2.93	26.60	29.74	3.49	6.46	2.85	2.34	0.41	0.02	0.81	0.88
41	4.40	-	-	4.00	3.10	28.90	31.50	-	-	-	-	-	-	-	-
43	0.00**	0.32**	0.16**	1.12	3.30	0.08**	0.00**	1.84**	1.84**	1.20**	2.56	0.56**	0.24**	0.56**	1.60**
44	0.60**	1.80**	0.00	0.50	0.00	31.00*	22.30**	5.20**	5.00**	3.40	4.10**	0.00**	0.00	2.40**	2.10**
45	3.50	0.10*	0.00	0.70	0.90	23.90	25.50*	3.30*	6.50	2.30	2.30	0.40	0.00	0.80	0.90
46	3.95	0.05	0.02	3.09	3.25	24.27	25.92	3.21**	5.88**	2.80	2.30	0.40	0.03	0.81	0.84
47	4.52	1.23**	5.15**	4.93*	2.04	24.03	28.80	9.58**	13.65**	15.05**	15.17**	1.65**	6.53**	9.01**	8.98**
48	2.90**	0.00**	0.00	0.50	0.50	27.60	27.90	3.70*	6.40	1.80**	2.60	0.40	0.00	0.80	0.90
49	3.10*	1.30**	0.20**	1.00	0.50	12.10**	13.10**	3.30*	5.30**	1.30**	1.50**	0.10**	0.00	1.50**	1.20**
50	4.18	0.00**	0.00	0.54	0.49	28.70	31.10	3.65	6.89*	2.54	1.84*	0.42	0.00	0.92	0.98*
52	3.56	0.06	0.00	2.71	4.97*	33.18**	33.28	4.22**	8.10**	3.69	3.12**	0.55**	0.40**	1.08**	3.17**
53	4.14	0.13*	0.07*	0.51	0.60	27.97	33.26	3.32*	6.31	2.39	1.77*	0.38	0.07*	0.77	0.79*
54	5.00*	0.05	0.02	9.20**	10.60**	25.00	29.00	3.40	6.50	4.10**	2.40	0.42	0.03	0.86	0.93
55	4.89	0.04	0.02	10.13**	19.74**	33.38**	36.81**	3.64	6.28	3.64	2.54	0.43	0.03	0.76*	0.92
59	4.24	0.07	0.03	1.93	1.45	22.70*	35.00*	4.96**	6.78*	3.16	2.23	0.50**	0.08*	0.88	0.97*
60	5.16*	0.12*	0.15**	8.16**	9.26**	38.60**	35.20*	3.66	6.63	3.53	2.66	0.43	0.03	0.86	1.08**
61	4.93	-	-	4.00	2.73	34.40**	37.60**	-	-	3.40	2.46	-	-	-	-
62	6.18**	0.22**	0.01	10.70**	12.10**	40.60**	47.20**	5.10**	9.01**	4.41**	2.92*	0.43	0.02	0.88	0.96*
63	7.85**	0.20**	0.13**	0.79	0.63	27.03	27.65	3.24*	5.45**	2.38	2.00	0.36	0.14**	0.95*	0.95
64	4.62	0.06	0.03	2.76	2.44	24.34	38.11**	1.99**	6.52	2.19	1.46**	0.45*	0.04	0.93	0.45**
65	-	0.30**	0.30**	-	-	-	-	3.55	6.86*	-	-	0.46**	0.30**	0.99**	1.09**
66	4.07	-	-	4.13*	3.25	-	-	-	-	2.86	2.16	-	-	-	0.85

Exch.Mg

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
68	3.60	0.06	0.01	0.93	0.73	24.68	22.97*	3.57	5.77**	2.21	1.93*	0.38	0.02	0.83	0.92
73	4.70	0.07	0.06*	3.53	2.47	21.95*	29.32	3.34*	6.64	3.26	2.71*	0.38	0.63**	0.72**	0.77*
74	-	0.06	0.03	-	-	-	-	3.52	-	-	-	0.47**	0.03	0.83	0.86
76	3.83	0.05	0.04	2.33	2.59	25.58	27.73	3.53	6.52	2.65	2.05	0.41	-	0.67**	0.72**
78	4.32	0.07	0.06*	4.28*	5.00*	28.45	31.64	3.46	6.57	3.17	2.31	0.40	0.05	0.86	0.92
MED1	4.14	0.07	0.03	2.71	2.73	27.03	29.32	3.54	6.50	2.91	2.32	0.41	0.05	0.86	0.90
MAD1	0.56	0.03	0.03	1.71	2.23	2.69	3.40	0.16	0.26	0.53	0.32	0.03	0.03	0.07	0.08
MED2	4.05	0.06	0.02	1.93	2.08	26.99	29.51	3.53	6.51	2.86	2.34	0.40	0.02	0.86	0.90
MAD2	0.45	0.01	0.01	1.07	1.18	1.85	1.93	0.08	0.12	0.44	0.18	0.02	0.02	0.04	0.03

Exch.Acidity

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
1	0.00	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	-	-
4	0.00	2.80	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
5	-	2.82	0.88	-	-	0.00	-	-	0.00	-	0.00	0.33*	0.47	-	-
6	0.00	4.00*	1.30*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30*	1.10*	0.00	0.00
7	0.00	2.65	0.84	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.05	0.53	0.03	0.00
9	1.35**	2.15*	1.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26*	0.97	0.02	1.03**
10	-	-	-	0.00	0.00	0.00	0.00	-	-	0.00	0.00	-	-	-	-
12	0.00	-	-	0.00	0.00	0.00	0.00	-	-	0.00	-	-	-	0.00	0.00
14	0.00	2.90	1.11	0.00	0.00	0.00	0.00	-	-	0.00	0.00	-	0.50	-	-
15	0.00	15.30**	2.98**	0.00	0.00	0.47**	0.00	3.16**	1.35**	0.23**	0.67**	2.86**	2.24**	2.21**	1.74**
16	0.19**	3.64*	0.93	0.00	0.00	0.05**	0.04**	0.03*	0.07*	0.04**	0.03**	0.08	0.55	0.07	0.04*
17	0.02**	2.61	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.61	0.02	0.02*
19	0.00	2.96	0.92	0.00	0.00	-	0.00	0.09*	0.03*	-	-	0.20	0.60	0.08	0.06*
21	0.00	2.60	1.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.62	0.00	0.00
22	-	-	-	-	0.00	-	-	-	-	-	-	-	-	0.00	-
23	0.30**	27.10**	2.60**	0.00	0.00	1.20**	0.50**	3.80**	1.20**	0.90**	1.20**	2.80**	2.20**	2.20**	1.60**
27	0.00	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00
28	0.00	1.66*	0.83*	0.00	0.00	0.00	0.00	0.06*	0.04*	0.00	0.00	0.06	0.52	0.06	0.06*
29	1.92**	28.47**	3.43**	0.00	0.00	1.44**	0.71**	3.95**	1.72**	0.78**	1.15**	3.17**	1.59**	2.49**	1.63**
31	0.00	-	-	0.00	0.00	0.00	0.00	-	-	0.00	0.00	-	-	-	-
32	0.00	45.70**	4.20**	0.00	0.00	1.50**	0.00	5.00**	1.00**	0.00	1.50**	3.00**	2.00**	3.00**	2.00**
33	0.14**	3.10	1.03	0.00	0.00	0.09**	0.09**	0.02	0.05*	0.05**	0.05**	0.14	0.65	0.07	0.04*
34	-	26.50**	1.75*	-	-	-	-	0.00	0.00	-	-	0.40*	1.58**	0.00	1.50**
37	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	24.60**	4.40**	-	-	-	-	5.60**	3.50**	-	-	3.40**	2.60**	4.70**	3.90**
39	0.00	2.41	0.95	0.00	0.00	0.06**	0.06**	0.06*	0.06*	0.06**	0.06**	0.10	0.63	0.13*	0.06*
41	0.00	-	-	0.00	0.00	1.50**	0.00	-	-	-	-	-	-	-	-
42	-	12.20**	2.20**	-	-	-	-	-	-	-	-	-	1.00*	0.80**	-
43	0.00	27.60**	4.00**	0.00	0.00	0.00	0.00	5.20**	3.60**	1.20**	2.40**	2.40**	1.80**	5.20**	3.20**
44	0.00	9.60**	2.40**	0.00	0.00	0.00	0.00	2.40**	2.40**	0.00	0.00	2.40**	2.40**	2.40**	2.40**
45	2.00**	48.70**	6.90**	0.50**	0.50**	11.80**	9.80**	8.40**	5.40**	3.90**	5.40**	6.40**	4.40**	8.90**	4.90**
46	0.10**	2.88	1.18	0.00	0.00	0.06**	0.10**	0.06*	0.06*	0.10**	0.05**	0.08	0.83	0.10	0.00

Exch.Acidity

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
47	0.00	6.96**	7.85**	0.00	0.00	0.00	0.00	3.08**	0.00	-	-	0.65*	1.40*	-	-
48	1.20**	52.00**	4.80**	0.00	0.00	8.00**	5.70**	7.30**	3.50**	1.80**	3.90**	4.70**	2.00**	5.20**	3.90**
49	0.00	3.70*	1.10	0.00	0.00	-	-	0.00	0.00	0.00	-	0.00	0.70	0.00	0.00
50	0.00	7.40**	1.00	0.00	0.00	0.00	0.00	3.30**	0.00	0.00	0.00	1.20**	0.90	0.60**	1.20**
52	0.26**	3.90*	1.66*	6.00**	0.00	0.29**	0.27**	0.26**	0.18**	0.28**	0.17**	0.26*	1.15*	0.25*	0.20**
53	0.00	2.50	0.81*	0.00	0.00	-	0.00	0.05*	-	-	-	0.04	0.44	0.04	-
54	0.00	12.00**	2.20**	0.00	0.00	0.00	0.00	1.60**	0.20**	0.00	0.00	1.20**	1.20*	0.90**	0.50**
55	0.00	22.86**	1.75*	0.00	0.00	0.00	0.00	2.12**	0.00	0.00	0.00	1.17**	0.75	1.10**	0.51**
60	0.00	2.93	1.08	0.00	0.00	0.00	0.00	0.00	-	0.00	0.00	0.14	0.86	0.09	0.00
61	0.00	-	-	0.00	0.00	0.00	0.00	-	-	0.00	0.00	-	-	-	-
62	0.02**	2.33	1.08	0.00	0.00	0.00	0.02**	0.02	0.00	0.02**	0.00	0.02	0.68	0.05	0.00
63	0.00	1.75*	0.79*	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.08	0.53	0.07	0.05*
64	0.08**	3.58*	1.97**	0.00	0.00	0.06**	0.06**	0.16*	0.14**	0.06**	0.10**	0.28*	0.91	0.22*	0.19**
68	0.51**	16.31**	3.68**	0.00	0.00	5.32**	5.68**	4.54**	2.41**	1.03**	1.70**	2.92**	2.20**	2.73**	1.97**
73	0.08**	2.51	0.43**	0.00	0.00	0.08**	0.00	0.00	0.00	0.08**	0.00	0.04	0.55	0.02	0.04*
74	-	5.61*	1.32*	-	-	-	-	0.00	-	-	-	0.10	0.69	0.00	0.00
76	0.00	-	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	-	-	-	-
78	-	2.94	1.11	-	-	-	-	0.10*	-	-	-	0.10	0.81	0.10	0.10*
MED1	0.00	3.67	1.14	0.00	0.00	0.00	0.00	0.06	0.03	0.00	0.00	0.26	0.85	0.08	0.06
MAD1	0.00	1.43	0.32	0.00	0.00	0.00	0.00	0.06	0.03	0.00	0.00	0.24	0.31	0.08	0.06
MED2	0.00	2.85	1.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.09	0.68	0.04	0.00
MAD2	0.00	0.34	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.07	0.15	0.04	0.00

Base Sat.

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
1	352**	3	9	343**	423**	130**	130**	105*	135**	198**	113**	65	10	94	84
4	100	5	4	100	100	100	100	86	100	100	100	57	25	90	100
5	-	3	2	-	-	107**	-	91	102	-	115**	78	12	98	94
6	100	6	14	100	100	100	100	96	100	100	100	91	9	100	100
7	888**	9*	23*	564**	2359**	108**	111**	88	104*	218**	113**	78	3	128**	120**
9	99*	17**	25*	100	100	100	100	100	100	100	100	80	28	100	78*
10	61**	6	11	4502**	2961**	110**	131**	90	95*	261**	137**	23**	44*	64**	64**
12	493**	2	3	846**	3845**	107**	107**	85	98	248**	77**	72	9	99	119**
14	100	2	9	100	100	100	100	86	94*	100	100	48	13	86*	92
15	100	6	10	100	100	99*	100	84	95*	99*	96*	49	11	84*	85
16	435**	4	13	171**	719**	59**	24**	106*	116**	165**	116**	74	17	101	109**
17	333**	7*	13	312**	413**	162**	151**	140**	113**	176**	146**	68	44*	100	100
19	472**	3	5	209**	338**	94**	103**	89	100	97**	84**	64	13	93	89
21	100	6	28**	100	100	100	100	98	100	100	100	57	1	98	100
22	59**	8*	16	98**	99**	-	-	76	-	83**	81**	65	54*	101	95
23	-	133**	126**	118**	108**	100	98**	106*	101	103**	106*	115**	164**	106*	103
26	100	17**	12	100	100	100	100	93	95*	100	100	85	40*	100	94
27	1105**	5	4	644**	2481**	126**	143**	110**	119**	306**	141**	116**	14	113**	124**
28	100	20**	15	100	100	100	100	100	100	100	100	97	25	99	99

Base Sat.

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
29	96**	18**	61**	100	100	98*	99**	85	95*	97**	95*	65	72**	87*	90
31	555**	2	2	319**	1055**	106**	108**	85	97*	144**	100	71	4	91	95
32	100	1*	3	100	100	100	100	84	97*	100	99*	55	5	88*	87
33	590**	3	5	470**	1420**	99*	104**	98	92**	175**	106*	63	13	92	100
34	-	4	13	-	-	-	-	107*	229**	-	-	92	15	100	85
37	361**	3	15	6**	17**	76**	74**	68**	69**	98*	81**	64	33	87*	88
38	-	6	56**	-	-	-	-	85	89**	-	-	92	66**	97	100
39	100	4	21*	100	100	91**	82**	77	91**	100	100	73	35	100	100
41	100	-	-	450**	1297**	100	100	-	-	-	-	-	-	-	-
43	520**	3	5	170**	615**	58**	55**	59**	58**	67**	72**	57	26	67**	78*
44	100	24**	41**	100	100	96*	100	100	100	100	100	100*	100**	100	100
45	96**	2	3	97**	91**	82**	85**	65**	80**	74**	73**	29**	4	52**	62**
46	100	1*	3	100	100	84**	94**	67**	77**	100	78**	38**	5	59**	65**
47	100	32**	58**	100	100	100	99**	84	100	97**	97*	85	88**	90	92
48	101*	0**	2	81**	77**	88**	93**	73*	80**	89**	85**	67	2	65**	72**
49	99*	38**	48**	100	100	76**	82**	100	100	100	94*	87	41*	100	100
50	100	12**	15	100	100	100	100	85	100	100	100	71	36	95	89
52	100	22**	60**	100	100	100	100	-	99	100	92*	96	89**	-	-
53	128**	29**	27**	137**	188**	95**	100	100	92**	89**	88**	100*	58**	101	88
54	100	4	4	100	100	100	100	99	100	100	100	70	11	94	96
55	100	3	4	100	100	100	100	90	100	100	100	72	37	92	95
56	-	3	9	20**	73**	67**	63**	85	96*	54**	97*	68	17	70**	82
57	99*	9*	7	100	100	100	100	100	100	100	100	96	13	99	100
58	100	3	8	100	100	100	100	70*	67**	87**	89**	79	39*	82**	89
59	100	4	9	100	100	94**	100	100	100	100	100	52	31	100	100
60	100	6	22*	100	100	100	100	86	98	100	100	100*	43*	95	100
61	100	-	-	100	100	100	100	-	-	100	100	-	-	-	-
62	207**	4	0	105**	79**	115**	122**	23**	30**	50**	22**	4**	0	14**	12**
63	100	5	20*	100	100	100	100	84	99	100	100	94	30	88*	31**
64	99*	10**	10	100	100	100	100	98	99	99*	98*	78	18	94	92
66	557**	-	-	434**	1415**	-	-	-	-	161**	75**	-	-	-	94
68	99*	4	2	100	100	93**	92**	79	89**	94**	90**	48	5	81**	83
73	100	16**	23*	100	100	98*	100	89	99	100	100	100*	55**	78**	77*
74	-	3	12	-	-	-	-	92	-	-	-	78	23	94	92
76	100	2	7	100	100	100	100	100	100	100	100	52	7	96	90
78	-	24**	42**	-	-	-	-	99	-	-	-	97	45*	-	-
MED1	100.0	5.0	11.5	100.0	100.0	100.0	100.0	89.0	99.0	100.0	100.0	72.0	24.0	94.0	92.0
MAD1	0.5	2.0	7.5	0.0	0.0	2.0	0.0	10.0	3.0	1.0	4.5	15.0	15.0	6.0	8.0
MED2	100.0	4.0	9.0	100.0	100.0	100.0	100.0	90.0	100.0	100.0	100.0	72.5	16.0	96.5	94.0
MAD2	0.0	1.0	5.0	0.0	0.0	0.0	0.0	7.0	1.0	0.0	0.0	12.5	11.0	3.5	6.0

C E C

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
1	13.7	16.9	3.3	8.5	4.2*	51.7**	56.3**	14.8**	15.4**	12.2**	13.8	4.3	3.0**	8.5**	9.9

C E C

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
4	56.8**	18.3	2.5	8.8	4.4*	77.3	75.5	18.9	22.6	18.2	15.8	4.7	2.0	12.6	11.6
5	11.9	19.3	2.4	7.7	1.5	88.2*	87.9	20.7	24.4	17.0	16.0	3.5	1.3	12.3	10.4
6	11.4	19.6	2.1	8.0	1.7	76.9	76.9	18.8	22.9	15.0	14.4	3.2	1.1	10.8	8.8
7	12.4	18.2	2.1	8.8	1.6	88.8*	86.3	20.6	24.2	18.5	15.6	4.2	1.0	11.7	9.4
9	127.4**	2.6**	1.4	15.3**	5.5**	113.4**	25.9**	8.4**	7.3**	9.8**	3.6**	1.3**	1.3	4.3**	4.6**
10	27.0**	36.0**	3.0	1.2**	1.1	76.0	67.0	20.0	26.0**	11.5**	12.0**	4.0	1.0	16.0**	11.0
12	27.0**	26.3	6.6**	9.0	1.7	81.9	80.4	19.8	22.9	17.4	20.8**	3.4	2.3*	11.5	9.0
14	15.8	27.3	4.4*	9.8	2.8	76.3	78.0	21.4	25.8**	19.2	18.1*	5.9**	3.2**	14.1*	11.4
15	99.6**	16.3	3.3	24.4**	19.9**	84.6*	91.4*	20.1	25.3*	28.2**	17.7	5.6*	2.5*	13.5	11.6
16	12.3	21.6	2.6	8.5	1.8	70.2*	74.1	18.5	22.8	15.8	15.3	3.6	1.3	11.9	9.5
17	12.6	13.4	2.3	8.4	3.0	32.1**	32.7**	7.8**	9.4**	7.2**	7.4**	2.8*	0.9	5.3**	4.4**
19	14.5	15.3	1.9	10.9	2.8	89.7**	87.5	19.7	23.8	20.6	18.8*	3.4	1.0	12.0	9.9
21	9.7*	21.0	2.8	5.5**	1.1	72.2	72.0	20.5	22.4	13.0*	13.6	3.9	1.6	11.8	8.8
22	18.8*	16.5	7.8**	8.8	2.7	21.5**	20.8**	19.8	12.3**	15.0	17.0	4.0	2.3*	9.0**	12.8**
23	15.0	22.8	2.3	9.3	2.4	85.5*	83.0	21.5	24.4	20.2	16.3	4.8	1.4	12.8	11.0
26	14.4	3.7**	2.4	9.5	4.9*	81.7	91.0*	16.3**	23.3	18.3	16.5	2.8*	1.0	10.0*	9.8
27	11.3	17.4	2.1	7.4	1.2	76.5	75.8	18.9	22.4	14.9	14.4	2.6*	0.9	11.3	8.8
28	108.0**	2.1**	1.0*	51.7**	39.4**	73.7	78.7	15.0**	24.0	33.2**	17.8	2.1**	0.7	11.1	9.5
29	46.1**	34.6*	8.7**	66.1**	43.8**	75.2	81.4	26.5**	31.6**	26.1**	21.9**	9.2**	5.7**	18.6**	16.1**
31	14.0	21.3	4.6*	9.1	2.0	74.3	74.2	19.2	23.4	16.1	16.7	3.6	1.9	12.1	10.0
32	23.1**	37.9**	3.4*	10.9	3.7	65.9*	68.6	21.1	23.0	17.8	16.0	5.6*	2.1*	14.1*	11.5
33	12.5	19.4	2.1	8.6	1.9	87.3*	86.4	20.1	23.2	16.8	14.9	3.5	1.1	11.3	8.8
34	13.8	27.7*	1.9	10.5	1.7	84.3*	81.4	18.9	22.4	18.0	15.6	4.5	1.8	13.7	10.2
35	-	56.0**	8.0**	12.0*	11.2**	91.2**	86.4	28.0**	27.2**	26.4**	20.8**	7.2**	4.0**	16.0**	13.6**
37	14.0	43.1**	5.3**	10.5	3.5	100.0**	97.5**	23.0**	25.9**	20.3	19.7**	5.6*	3.0**	13.5	11.2
38	16.1	36.8**	3.2	19.2**	8.0**	35.2**	40.3**	21.2	25.5*	18.3	16.6	3.7	2.1*	13.4	10.9
39	13.8	21.2	3.1	9.6	2.4	81.8	81.5	20.9	24.5	17.8	16.3	4.2	1.3	13.1	10.7
41	16.2	-	-	13.5**	2.9	77.5	77.5	-	-	-	-	-	-	-	-
42	13.9	48.9**	6.5**	18.8**	2.5	88.7*	89.4	23.5**	25.8**	21.4*	19.2*	6.1**	3.1**	15.4**	13.0**
43	14.4	32.0*	4.0*	11.4*	2.5	81.0	84.0	22.8*	25.6*	20.0	18.8*	4.8	2.1*	14.4*	11.8
44	7.7**	20.0	2.2	9.5	2.3	75.0	61.0*	12.9**	15.0**	12.6*	12.5*	2.5*	1.2	11.4	5.9**
45	50.6**	49.6**	7.1**	16.0**	5.6**	63.9**	66.1	24.0**	26.9**	14.8	20.1**	9.0**	4.6**	18.7**	13.0**
46	13.6	21.0	3.6*	10.1	3.6	70.3*	68.8	19.2	23.3	17.0	15.9	5.2*	2.8*	13.5	10.3
47	18.9*	10.3*	18.8**	20.7**	4.3*	56.1**	70.2	18.4	22.3	23.5**	23.1**	4.2	11.5**	13.6	12.8**
48	14.8	50.3**	7.5**	13.3*	5.1*	74.4	66.2	24.3**	29.7**	11.0**	20.4**	3.8	6.4**	17.9**	13.1**
49	14.7	13.1	2.7	7.8	2.1	62.2**	62.1*	15.8**	20.0**	15.7	13.8	3.0	1.7	11.1	9.8
50	14.6	8.4*	1.2*	7.5	2.3	84.2*	87.6	21.8	24.5	18.5	14.2	4.1	1.4	12.2	10.9
51	5.8**	15.9	1.8	3.8**	0.3**	58.6**	53.2**	17.5*	21.1*	10.7**	11.9**	2.5*	1.1	9.6*	9.0
52	17.1*	32.8*	7.8**	10.3	3.0	94.3**	73.0	-	27.4**	17.5	21.2**	5.4*	4.2**	-	-
53	17.0*	3.6**	1.1*	9.1	2.0	89.5**	92.3*	17.2*	26.3**	20.8	17.7	2.9*	1.0	11.3	11.2
54	26.1**	14.0	2.2	17.0**	4.1*	110.0**	108.0**	18.3	22.1	31.0**	29.8**	4.0	1.0	11.9	9.7
55	196.2**	23.5	6.2**	155.9**	98.2**	109.3**	114.4**	22.1*	24.3	41.8**	17.7	4.2	1.2	13.0	10.4
56	12.8	27.6*	2.3	11.2*	3.0	77.7	76.0	18.4	22.4	20.0	15.2	3.8	1.2	13.9	9.9
57	69.4**	3.2**	1.3*	29.1**	18.3**	59.2**	64.6	13.0**	17.9**	21.8*	12.5*	2.0**	1.0	8.1**	6.7**
58	11.9	28.2*	2.6	7.7	1.8	71.4	63.9	19.1	22.2	15.4	15.3	3.4	1.4	15.7**	10.4
59	14.0	25.3	3.0	8.6	1.8	79.8	78.7	20.0	23.3	17.0	14.1	3.6	1.4	12.2	9.4
60	10.0*	15.6	1.4	5.6**	0.4**	76.4	74.4	18.8	22.0	14.8	14.0	2.0**	0.4*	10.6	8.0**
61	10.8*	-	-	6.4*	0.8*	74.8	76.4	-	-	15.6	14.4	-	-	-	-
62	11.9	17.2	1.7	8.3	1.4	79.5	77.7	19.8	23.3	16.7	14.7	3.0	0.8	11.5	9.2
63	13.1	28.7*	5.5**	10.0	3.3	35.4**	35.8**	21.5	23.4	17.4	15.4	4.4	3.8**	13.8	11.0

C E C

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
64	9.5*	4.0**	2.2	19.4**	7.9**	37.8**	58.0**	7.8**	12.3**	7.9**	4.8**	1.3**	1.1	3.5**	2.5**
66	20.9**	-	-	11.1*	2.2	-	-	-	-	17.9	21.1**	-	-	-	9.7
68	33.5**	17.0	3.8*	16.6**	5.4**	79.3	72.3	21.2	21.3*	16.0	16.4	5.6*	2.3*	14.3*	11.8
70	14.0	38.0**	6.0**	14.0**	4.0*	76.0	87.0	23.0**	23.0	18.0	16.0	6.0**	3.0**	14.0	17.0**
71	-	44.0**	8.0**	-	-	-	-	26.0**	-	-	-	10.0**	6.0**	17.0**	16.0**
72	-	9.6*	5.0**	-	-	-	-	17.0*	-	-	-	4.0	7.0**	9.0**	8.0**
73	19.0*	21.7	4.3*	8.9	7.1**	75.1	68.3	20.8	23.5	18.2	19.6**	3.9	2.9**	14.2*	11.2
74	9.9*	26.7	2.8	7.6	1.7	74.1	73.2	19.3	21.5*	12.8*	14.2	4.2	1.6	12.1	10.1
76	24.8**	34.9**	5.0**	28.8**	13.9**	74.9	73.9	18.0	23.2	20.4	15.4	5.7**	2.4*	11.4	10.3
78	-	3.9**	1.9	-	-	-	-	16.8*	-	-	-	2.9*	1.5	-	-
MED1	14.45	21.00	2.92	9.71	2.81	76.40	75.80	19.80	23.27	17.49	16.00	4.00	1.61	12.19	10.27
MAD1	2.55	6.85	1.02	1.80	1.16	6.24	8.80	1.50	1.17	2.51	1.80	0.80	0.61	1.41	1.10
MED2	13.85	19.80	2.35	9.06	2.40	76.70	76.65	19.80	23.20	17.49	15.60	3.92	1.34	12.18	10.20
MAD2	1.40	3.82	0.50	0.99	0.70	2.90	6.42	1.02	0.80	1.69	1.20	0.48	0.34	0.92	0.80

Organic C

SAMPLE:	11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
LAB:															
1	0.14	3.30**	0.30	0.25	0.11	1.50	1.37	1.79	0.55	1.58*	0.34*	1.00*	0.13	0.31	0.20
4	0.07	3.51**	0.26	0.17	0.07	1.68	1.50	1.76	0.52	1.62	0.39	1.10	0.15	0.29	0.15
5	0.19	4.78	0.32	0.66**	0.11	2.18**	0.43**	2.05	0.51	0.75**	0.41	1.17	0.23	0.39	0.20
6	0.12	4.27	0.27	0.21	0.07	1.49	1.15*	1.83	0.53	1.65	0.37	1.07	0.15	0.28	0.14
7	0.13	5.14	0.36	0.24	0.06	1.78	1.34	2.29	0.65	1.90	0.42	1.30	0.18	0.34	0.17
9	0.12	3.14**	0.35	0.28	0.39**	1.18**	0.93**	1.74*	0.51	1.65	0.39	1.46*	0.16	0.32	0.32**
12	0.14	5.16	0.34	0.34*	0.08	1.79	1.48	2.34	0.66	2.02	0.38	1.44*	0.18	0.35	0.18
14	0.05*	4.21*	0.22*	0.12**	0.03*	1.00**	0.92**	1.58**	0.37**	1.36**	0.27**	0.88**	0.09**	0.20**	0.11*
15	0.10	4.10*	0.30	0.20	0.10	1.60	1.30	2.00	0.60	1.80	0.40	1.20	0.20	0.30	0.10**
16	0.02**	4.70	0.33	0.24	0.11	1.79	1.43	2.19	0.64	1.81	0.44	1.41	0.31**	0.35	0.20
17	0.23*	4.61	0.49**	0.33*	0.20*	1.76	2.39**	2.04	0.67	1.97	0.55*	1.24	0.37**	0.61**	0.32**
19	0.17	6.17**	0.38	0.30	0.11	1.99	1.62	2.30	0.73**	2.05	0.53	1.38	0.26	0.40	0.19
21	0.39**	5.30	0.60**	0.38**	1.73**	1.57	2.71**	1.11**	2.62**	0.98**	1.90**	0.64**	0.79**	0.62**	0.75**
22	0.11	5.22	0.32	0.24	0.07	0.96**	1.53	1.94	0.58	1.97	0.40	1.31	0.17	0.13**	0.30**
23	0.11	4.96	0.33	0.11**	0.01**	2.12*	1.73*	1.95	0.59	1.62	0.49	1.07	0.20	0.34	0.16
27	0.07	3.45**	0.25	0.18	0.05	1.62	1.37	1.66*	0.48*	1.41**	0.31*	1.01*	0.12	0.27	0.13
28	0.16	5.11	0.38	1.05**	1.19**	1.43*	1.27	2.00	0.57	2.81**	0.46	1.19	0.22	0.32	0.16
29	0.44**	3.45**	0.37	0.22	0.04	1.18**	1.28	1.70*	0.56	1.50**	0.57**	0.89**	0.17	0.16**	0.09**
30	0.15	4.61	0.24	0.17	0.12	0.79**	0.60**	1.73*	0.48*	1.52*	0.39	0.99*	0.17	0.31	0.25
31	0.09	4.62	0.24	0.22	0.06	1.65	1.36	2.17	0.60	2.04	0.39	1.36	0.16	0.31	0.15
32	0.15	4.63	0.42*	0.30	0.12	1.92	1.62	2.09	0.66	1.80	0.48	1.39	0.27	0.42*	0.22
33	0.14	0.44**	0.27	0.20	0.06	1.88	1.51	1.78	0.50	1.50**	0.36	1.01*	0.15	0.29	0.16
34	0.08	5.53	0.30	0.20	0.05	1.61	1.27	2.11	0.59	1.85	0.36	0.36**	0.15	0.29	0.12
35	0.02**	5.23	0.33	0.15*	0.03*	1.61	1.34	2.11	0.55	1.85	0.35	1.30	0.17	0.27	0.09**
36	0.17	4.72	0.53**	0.30	-	1.95	-	2.03	0.71*	1.73	0.49	1.97**	0.45**	0.38	0.29*
38	0.09	5.42	0.24	0.17	0.03*	1.44*	1.31	2.28	0.57	2.20**	0.41	1.72**	0.17	0.30	0.16
39	0.12	4.48	0.30	0.23	0.02*	1.76	1.38	2.24	1.52**	2.00	0.10**	1.19	0.15	0.32	0.13

Organic C

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28
42	0.20*	4.90	0.30	0.30	0.02*	1.60	4.00**	1.50**	0.50	1.60*	0.30**	1.00*	0.10**	0.30	0.20
43	0.14	3.84**	0.28	0.17	0.41**	1.25**	0.99**	1.59**	0.47**	1.42**	0.29**	1.02	0.14	0.23*	0.12
44	0.20*	5.50	0.60**	0.40**	0.10	1.90	1.60	1.60**	0.60	1.90	0.50	2.00**	0.40**	0.40	0.20
45	0.14	4.38	0.35	0.26	0.11	1.30*	1.16	2.17	0.53	1.89	0.34*	1.27	0.22	0.25	0.21
46	0.22*	4.42	0.55**	0.42**	0.30**	1.68	1.13*	2.25	0.74**	1.80	0.58**	1.32	0.45**	0.50**	0.30**
47	0.04**	5.11	0.42*	0.75**	0.47**	2.29**	1.55	2.71**	0.86**	2.17*	0.51	1.32	0.28*	0.45*	0.17
48	0.10	6.20**	0.30	0.30	0.10	2.00	1.80**	2.30	0.70	1.90	0.40	1.30	0.20	0.40	0.20
49	0.40**	5.14	0.44*	0.44**	0.32**	2.11*	2.17**	2.18	0.62	0.96**	0.48	1.57**	0.26	0.52**	0.34**
50	0.07	5.50	0.35	0.63**	0.46**	2.20**	1.90**	2.20	0.61	2.40**	0.48	1.30	0.21	0.36	0.17
51	0.09	4.17*	0.30	0.19	0.06	1.25**	1.07*	2.04	0.59	1.84	0.37	1.22	0.15	0.31	0.15
52	0.19	5.67*	0.38	0.31	0.14	1.82	1.59	2.26	0.65	2.00	0.43	1.34	0.24	0.54**	0.21
53	0.20*	4.80	0.50**	0.40**	0.20*	1.40*	1.30	1.80	0.60	1.80	0.50	1.20	0.40**	0.50**	0.40**
54	0.10	5.00	0.30	0.20	0.10	2.00	1.60	2.00	0.60	1.80	0.50	1.20	0.20	0.30	0.20
55	3.83**	7.85**	0.55**	3.82**	3.89**	2.39**	2.21**	2.32	0.32**	2.90**	0.21**	1.17	0.30**	0.45*	-
60	0.12	5.38	0.35	0.19	0.17*	1.84	1.38	2.17	0.65	1.84	0.46	1.27	0.27	0.27	0.27
62	0.17	4.57	0.27	0.25	0.11	1.79	1.40	1.86	0.55	1.77	0.45	1.12	0.18	0.37	0.24
63	0.13	5.36	0.43*	0.27	0.06	1.88	1.60	2.27	0.65	1.94	0.46	1.35	0.18	0.39	0.19
64	0.35**	4.35	0.42*	0.00**	0.11	1.52	1.39	2.00	0.69	1.89	0.27**	1.00*	0.00**	0.23*	0.21
65	2.61**	4.32	0.45*	3.19**	2.66**	1.83	1.67*	1.88	0.61	2.46**	0.50	1.05	0.29*	0.41*	0.26
67	0.10	4.40	0.10**	0.10**	0.10	1.30*	1.50	2.20	0.50	1.70	0.20**	1.20	0.20	0.60**	0.10**
68	0.13	4.79	0.42*	0.23	0.10	2.13*	1.95**	1.99	0.67	1.87	0.50	1.15	0.27	0.44*	0.22
70	0.16	5.22	0.33	0.27	0.11	1.71	1.25	0.90**	0.28**	2.18*	0.44	0.44**	0.19	0.35	0.16
73	0.19	8.74**	0.62**	0.45**	0.15	2.86**	2.33**	3.84**	1.09**	3.04**	0.72**	2.06**	0.28*	0.52**	0.28
74	0.19	4.89	0.42*	0.26	0.08	1.97	1.68*	2.02	0.62	1.92	0.44	1.48*	0.24	0.38	0.20
76	0.09	5.51	0.35	0.29	0.23**	1.45	1.04**	2.10	0.66	2.03	0.46	1.46*	0.24	0.35	0.23
78	0.29**	5.53	0.27	0.27	0.27**	1.66	1.48	2.22	0.64	1.97	0.46	1.31	0.27	0.46*	0.27
MED1	0.14	4.80	0.34	0.26	0.11	1.71	1.41	2.04	0.60	1.85	0.43	1.22	0.20	0.34	0.20
MAD1	0.05	0.45	0.07	0.06	0.05	0.22	0.19	0.20	0.06	0.17	0.06	0.15	0.05	0.06	0.05
MED2	0.13	4.90	0.33	0.24	0.10	1.76	1.39	2.05	0.60	1.85	0.44	1.22	0.20	0.33	0.20
MAD2	0.03	0.33	0.05	0.04	0.03	0.16	0.12	0.15	0.05	0.12	0.05	0.10	0.04	0.04	0.04

TABLE 2

CLAY (%)

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM
1	17.5	15.5	17	32.5	18.5	21.5	28.5	33.5	23	9	21	17	19	37.5	26	337
4	34.5	41	29	36.5	37.5	25	20.5	33.5	35	32	44	37	29.5	37.5	34.5	507
5	41.5	37.5	29	7.5	9.5	44.5	42	27.5	35	32	37	17	19	33.5	34.5	447
6	32	19	10	28	32	40	45	21.5	35	24	37	27	29.5	26.5	26	432.5
7	41.5	19	17	18.5	9.5	37.5	39	39.5	35	39	29.5	27	19	26.5	26	423.5
9	15.5	15.5	2	18.5	32	7	5	7	4.5	6.5	2	11.5	2	4.5	8.5	142 **
14	28.5	35	12	9	3.5	16	9	15	3	39	8	11.5	44.5	46	34.5	314.5
15	47	23.5	42	20	18.5	28	13	21.5	23	44.5	14.5	7	29.5	13	11	356
16	4.5	28.5	17	32.5	18.5	18.5	18	39.5	23	15.5	14.5	8.5	12	18	5.5	274
17	15.5	32	29	6	14	5	3	10.5	6	32	21	27	29.5	7.5	11	249
19	30.5	10.5	38.5	32.5	32	44.5	45	33.5	41.5	27	37	37	37.5	33.5	26	506.5
21	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	16 **
22	20.5	41	38.5	26	25	32.5	34	15	23	9	11	37	29.5	2	42.5	386.5
23	23	23.5	29	4	5.5	37.5	36.5	21.5	28.5	21.5	29.5	27	29.5	18	26	360.5
26	28.5	10.5	17	41	37.5	25	23.5	8.5	17	18.5	29.5	11.5	19	26.5	39.5	353
27	20.5	10.5	29	23.5	25	28	28.5	21.5	23	13	21	27	19	26.5	16.5	332.5
28	25	45	45.5	3	14	35	42	27.5	35	32	41.5	46	42	26.5	34.5	494.5
29	27	28.5	38.5	38.5	42	18.5	25	5	28.5	11	37	8.5	37.5	37.5	39.5	422.5
30	4.5	6	17	15.5	42	20	15.5	2.5	9	4	21	5	19	18	26	225
31	44	37.5	38.5	45	45	23	28.5	39.5	45	46	46	44.5	44.5	43	42.5	612.5**
32	43	19	29	15.5	9.5	44.5	45	39.5	41.5	32	37	37	29.5	40.5	26	488.5
33	39	10.5	29	15.5	3.5	47	47	33.5	35	39	8	27	42	33.5	39.5	449
34	40	44	29	11.5	5.5	37.5	42	43.5	45	21.5	21	27	19	44	26	456.5
35	6	10.5	29	2	32	15	15.5	27.5	17	2	8	5	4	33.5	16.5	223.5
37	30.5	32	10	41	42	10	8	39.5	7.5	3	29.5	2	7	10	16.5	288.5
38	36.5	34	42	15.5	18.5	28	34	33.5	41.5	39	37	27	37.5	26.5	26	476.5
39	20.5	23.5	17	32.5	37.5	41.5	39	33.5	28.5	24	14.5	17	4	37.5	45	415.5
42	13	6	29	28	25	32.5	26	21.5	17	27	21	17	12	18	16.5	309.5
43	25	32	45.5	43	46	41.5	36.5	45	35	18.5	44	37	46	42	44	581 **
44	17.5	15.5	7	45	14	13	10	10.5	13.5	13	11	11.5	9.5	13	5.5	209.5
45	10	15.5	17	25	25	12	14	21.5	17	9	6	27	19	13	16.5	247.5
46	7	2	5	21.5	18.5	11	6	2.5	7.5	6.5	3	5	7	4.5	2.5	109.5**
47	11.5	37.5	17	36.5	32	8	17	39.5	11.5	32	21	44.5	42	26.5	34.5	411
48	45.5	46	29	23.5	25	44.5	31.5	47	47	47	47	42	29.5	47	47	598.5**
50	38	37.5	29	11.5	9.5	37.5	39	15	11.5	43	21	27	19	10	11	359.5
52	34.5	23.5	17	32.5	32	30	34	27.5	35	18.5	29.5	17	12	26.5	16.5	386
54	33	43	45.5	45	42	32.5	28.5	43.5	41.5	44.5	37	42	37.5	40.5	39.5	595.5**
55	8.5	2	8	32.5	25	6	7	4	4.5	5	11	3	9.5	4.5	2.5	133 **
59	14	23.5	29	11.5	9.5	32.5	31.5	15	35	39	29.5	37	37.5	10	8.5	363
60	11.5	41	5	21.5	42	9	4	8.5	10	13	4.5	27	7	7.5	5.5	217
62	2.5	10.5	29	28	32	21.5	20.5	27.5	23	24	29.5	27	37.5	26.5	26	365
64	45.5	23.5	3	41	18.5	17	20.5	15	23	18.5	41.5	17	19	26.5	34.5	364
67	2.5	6	10	5	2	3	11	15	13.5	15.5	14.5	17	4	18	16.5	153.5**
73	20.5	47	45.5	47	47	2	2	46	2	32	4.5	47	47	18	46	453.5
74	8.5	28.5	29	7.5	9.5	14	12	15	17	39	21	42	19	4.5	5.5	272
76	25	4	42	38.5	37.5	4	23.5	27.5	28.5	39	29.5	27	29.5	45	26	426.5
77	36.5	28.5	5	11.5	25	25	20.5	6	45	27	44	37	29.5	18	16.5	375

WITH 47 LABS AND 15 SAMPLES THE APPROXIMATELY 5% TWO TAIL LIMITS OF THE RANK SUMS ARE 532 AND 188. RANK SUMS EXCEEDING THESE VALUES ARE MARKED WITH **.

pH-H_2O

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM
1	11	28	24.5	10	18.5	18	16.5	42	23.5	25	28	46.5	35	27.5	42	396
4	5.5	36.5	24.5	17	18.5	45	45	42	42.5	31.5	39	30.5	35	27.5	42	482
5	40	28	24.5	34	30.5	29	32	23.5	31	31.5	28	30.5	26.5	35	42	466
6	40	2.5	7	53.5	48	29	39.5	49	35.5	25	16	14.5	35	10.5	18	423
7	52	36.5	13.5	34	48	38.5	32	31	42.5	31.5	48	36.5	9	43.5	42	538.5
9	40	11	13.5	34	30.5	18	12	3	23.5	11.5	16	4.5	9	4.5	18	249
10	2	44.5	43	1	1	10	8	42	19	3.5	6	41	45.5	10.5	11	288
12	40	11	7	34	39.5	22.5	12	8.5	54	31.5	28	14.5	9	10.5	18	340
14	15.5	44.5	43	3.5	7	5	5	23.5	27.5	18.5	16	23.5	41.5	27.5	24.5	326
15	22	2.5	1	50.5	39.5	10	24	31	4.5	6.5	9.5	14.5	3.5	2	4	225
16	1	51	50	2	7	26	2	47	11	1	3	43	52	16	8.5	320.5
17	4	36.5	34.5	10	12	29	24	52	14.5	18.5	9.5	46.5	41.5	4.5	11	348
19	53.5	28	13.5	50.5	48	49.5	45	23.5	42.5	49	48	14.5	19	50	42	576.5
21	11	17.5	24.5	6	7	18	24	16	8.5	11.5	4	23.5	9	17	11	208.5**
22	27	23.5	24.5	47.5	35	34	42	27	50	45	33	39	45.5	14.5	14.5	502
23	40	49	48.5	34	30.5	45	51	31	19	31.5	39	41	45.5	21	24.5	550.5
27	40	7.5	13.5	23	39.5	1	16.5	8.5	4.5	31.5	9.5	46.5	35	21	6	303.5
28	51	5	9.5	47.5	33	13.5	36.5	21	39	41.5	44	20	16.5	40	24.5	442.5
29	18	31	24.5	20	16	15	19	20	14.5	11.5	12	26	16.5	18	21	283
30	22	17.5	43	34	18.5	22.5	32	16	19	18.5	16	30.5	35	27.5	28.5	380.5
31	22	28	34.5	23	22.5	10	5	8.5	4.5	18.5	23	8	1	10.5	6	225
32	40	44.5	34.5	23	30.5	49.5	45	31	42.5	49	48	36.5	26.5	35	28.5	564
33	40	17.5	24.5	44	48	38.5	39.5	37.5	48	49	52.5	30.5	26.5	50	53.5	599.5
34	40	28	34.5	34	48	38.5	32	23.5	48	41.5	39	30.5	35	50	42	564.5
35	30	6	3	41	26	38.5	35	26	26	37	5	3	5	13	14.5	309
36	26	4	5	25	27.5	13.5	14	5	12	9	21	10	2	14.5	22	210.5**
37	40	55	53	10	12	53.5	51	54	52	49	48	53	55	54	50.5	690 **
38	11	44.5	48.5	10	18.5	5	8	31	8.5	6.5	2	36.5	35	1	2	268
39	11	53	54.5	6	2.5	51.5	5	49	35.5	3.5	16	50.5	54	50	42	484
42	40	54	54.5	55	55	55	54	55	55	54.5	55	54.5	53	43.5	55	793 **
43	40	36.5	43	44	39.5	45	45	37.5	31	41.5	39	30.5	26.5	50	18	567
44	53.5	44.5	51	17	22.5	53.5	45	45.5	52	53	39	54.5	50	43.5	33.5	658 **
45	50	32	38	44	44	5	10	16	19	36	28	8	22	3	42	397
46	3	52	43	10	7	22.5	12	51	19	6.5	16	50.5	49	21	2	364.5
47	7	17.5	18.5	3.5	14.5	25	24	16	35.5	14	39	19	19	43.5	53.5	349.5
48	40	17.5	24.5	34	39.5	38.5	51	31	35.5	49	39	23.5	9	35	42	509
49	5.5	36.5	34.5	50.5	48	38.5	39.5	31	23.5	11.5	28	30.5	35	35	33.5	481
50	40	44.5	43	53.5	53	29	55	42	31	49	52.5	49	45.5	35	28.5	650.5**
51	11	36.5	43	34	22.5	45	51	49	52	54.5	48	46.5	48	50	33.5	624.5**
52	11	44.5	43	34	39.5	51.5	24	45.5	42.5	41.5	54	41	41.5	35	50.5	599
53	22	36.5	34.5	34	48	38.5	51	37.5	35.5	49	48	36.5	35	43.5	42	591.5
54	40	17.5	24.5	44	53	29	24	16	14.5	18.5	28	23.5	26.5	35	33.5	427.5
55	17	25	17	13	14.5	2	29	2	1	18.5	1	2	21	7	8.5	178.5**
60	40	23.5	31	26	34	32.5	36.5	42	29	41.5	32	44	13.5	35	42	502.5
62	22	17.5	24.5	17	7	10	8	16	14.5	25	28	14.5	26.5	27.5	33.5	291.5
63	40	11	4	50.5	53	45	39.5	8.5	35.5	31.5	48	8	3.5	27.5	33.5	439
64	29	17.5	18.5	34	22.5	32.5	16.5	12	10	27	39	14.5	13.5	24	6	316.5
67	22	17.5	13.5	34	39.5	18	24	8.5	27.5	18.5	23	14.5	19	35	28.5	343
68	40	36.5	43	44	39.5	38.5	32	37.5	42.5	41.5	39	30.5	41.5	50	50.5	606.5
70	55	50	52	17	7	18	24	53	48	31.5	23	52	51	55	50.5	587
73	15.5	44.5	13.5	17	12	22.5	24	16	23.5	18.5	16	14.5	26.5	21	24.5	309.5
74	28	9	9.5	14	25	3	3	4	4.5	23	20	6	15	8	13	185 **
75	40	17.5	30	27	27.5	48	48	35	46	38	34	21	26.5	43.5	48	530
76	22	1	2	6	7	10	16.5	1	4.5	6.5	9.5	4.5	9	21	18	138.5**

pH-H_2O

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM	
78	11	7.5	7	21	2.5	7	1	8.5	4.5	2	7	1	9	6	2	97	**

WITH 55 LABS AND 15 SAMPLES THE APPROXIMATELY 5% TWO TAIL LIMITS OF THE RANK SUMS ARE 624 AND 216. RANK SUMS EXCEEDING THESE VALUES ARE MARKED WITH **.

C E C

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM	
1	19	17	34	14.5	37	6	7	6	6	7	10	37	44	5	22	271.5	
4	48	22	23	19	39	31	27	20	20	32	26	40	33	30	43.5	453.5	
5	10	23	21	8.5	7	45	46	36	39.5	23.5	29	18.5	20	29	30	386	
6	8	25	12.5	11	11.5	30	30	17.5	22	14.5	15.5	14	14	10	9	244.5	
7	13	21	12.5	19	8	47	41	35	37	36.5	24.5	33.5	8.5	20	14.5	371	
9	52	2	5	40	43	53	2	3	1	3	1	2	23	2	3	235	
10	43	46	29	1	4	25.5	15	30.5	49	6	5	29	8.5	50	36	377.5	
12	44	36	48	22	9	39	35	28	23	26.5	50	17	38.5	19	11	446	
14	34	38	40	29	27	27	32	42	46.5	38	42	49	48	43.5	41	507	
15	50	15	33	48	50	42	49	32.5	43	50	39.5	46	41	36	43.5	618.5	**
16	12	31	24.5	14.5	15	13	24	16	21	18	21	21.5	22	22	17	292.5	
17	15	10	19	13	29.5	2	3	1	2	1	3	9	5	3	2	117.5	**
19	29	12	9	35	28	49	44	26	35	44	44	16	12	24	21	428	
21	4	27.5	27	3	3	16	20	34	19	10	8	26	28	21	7	253.5	
22	37	16	51	19	26	1	1	28	4	14.5	37	29	37	6	48	354.5	
23	33	33	19	25	22	43	39	43.5	39.5	41	31.5	41.5	26	31	36	504	
26	28	5	22	26	40	37	48	9	28	34	34	10	8.5	8	20	357.5	
27	7	20	12.5	5	5	29	28	20	17	13	15.5	8	4	14	9	207	**
28	51	1	1	51	51	17	34	7	36	52	41	5	2	11.5	16	376.5	
29	46	44	52	52	52	24	36	53	53	49	51	53	51	52	52	720	**
31	23	30	41	23	17	19	25	24	32	20	36	20	32	25	24	391	
32	40	48	35	34	34	12	17	39	24.5	28.5	29	46	35	43.5	42	507.5	
33	14	24	12.5	16	16	44	42	32.5	27	22	18	18.5	14	14	9	323.5	
34	20.5	40	10	32.5	11.5	41	37	20	17	30.5	24.5	39	31	39	26	419.5	
37	25	50	43	32.5	32	50	51	48.5	48	42	47	46	45.5	36	38	634.5	**
38	35	47	32	45	47	3	5	40.5	44	35	35	23	35	34	33.5	494	
39	20.5	29	31	28	23	38	38	38	41.5	28.5	31.5	35.5	21	33	32	468.5	
42	22	51	47	44	24.5	46	47	50	46.5	46	45	51	47	48	49.5	664.5	**
43	27	43	38	37	24.5	36	40	47	45	39.5	43	41.5	35	47	46	589.5	
44	2	26	16.5	27	20.5	22	9	4	5	8	6.5	6.5	18	16	4	191	**
45	47	52	49	41	44	11	13	51	51	11.5	48	52	50	53	49.5	623	**
46	18	27.5	36	31	33	14	18	23	29.5	23.5	27	43	42	36	28	429.5	
47	38	8	53	47	38	7	19	14.5	15	48	52	35.5	53	38	47	513	
48	32	53	50	38	41	20	14	52	52	5	49	24.5	52	51	51	584.5	
49	31	9	26	10	19	10	10	8	8	17	9	12	30	11.5	19	229.5	
50	30	7	3	6	20.5	40	45	45	41.5	36.5	14	31	26	28	33.5	407	
51	1	14	8	2	1	8	6	11	9	4	4	6.5	14	7	12	107.5	**
53	36	4	2	24	18	48	50	10	50	45	38	11	11	14	39.5	400.5	
54	42	11	16.5	43	36	52	52	13	13	51	53	29	8.5	23	18	461	
55	53	34	46	53	53	51	53	46	38	53	39.5	33.5	18	32	30	633	**
56	16	39	19	36	29.5	32	29	14.5	17	39.5	19	24.5	18	41	23	397	
57	49	3	4	50	49	9	12	5	7	47	6.5	4	6	4	5	260.5	

C E C

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM	
58	10	41	24.5	8.5	13	15	11	22	14	16	20	15	26	49	30	315	
59	25	35	30	17	14	35	33	30.5	31	25	12	21.5	24	27	14.5	374.5	
60	6	13	6	4	2	28	26	17.5	12	11.5	11	3	1	9	6	156	**
62	10	19	7	12	6	34	31	28	29.5	21	17	13	3	18	13	261.5	
63	17	42	44	30	31	4	4	43.5	33	26.5	23	38	49	40	36	461	
64	3	6	15	46	46	5	8	2	3	2	2	1	16	1	1	157	**
68	45	18	37	42	42	33	21	40.5	10	19	33	44	38.5	46	45	514	
70	25	49	45	39	35	25.5	43	48.5	24.5	30.5	29	50	45.5	42	53	584.5	
73	39	32	39	21	45	23	16	37	34	33	46	27	43	45	39.5	519.5	
74	5	37	28	7	10	18	22	25	11	9	13	32	29	26	25	297	
76	41	45	42	49	48	21	23	12	26	43	22	48	40	17	27	504	

WITH 53 LABS AND 15 SAMPLES THE APPROXIMATELY 5% TWO TAIL LIMITS OF THE RANK SUMS ARE 601 AND 209. RANK SUMS EXCEEDING THESE VALUES ARE MARKED WITH **.

Organic C.

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM	
1	28	3	16.5	26	29.5	15	21.5	13	15	10	8.5	8	5	19.5	28.5	247	
4	6	6	7	7.5	16	25.5	30.5	11	11	12.5	17.5	16	9.5	12	12	200	**
5	38.5	24	21.5	48	29.5	48	1	28	9.5	1	23.5	19	33	34.5	28.5	387.5	
6	20.5	11	10	17	16	14	9	15	12.5	14.5	13.5	14.5	9.5	10	10	197	**
7	24	33.5	33	23	12	30	18.5	46	36.5	32	25	31.5	22	26.5	20	413.5	
9	20.5	2	30	32	45	4.5	4	10	9.5	14.5	17.5	45.5	13.5	23	47.5	319	
12	28	35	27	40	18.5	32	28.5	49	40	41	15	44	22	28.5	22	470.5	
14	4	10	2	4	5	3	3	4	2	4	3.5	4	2	3	5	58.5	**
15	14.5	8	16.5	14.5	22.5	18.5	15.5	22.5	26	20	21	23.5	27	15.5	3.5	269	
16	1.5	23	25	23	29.5	32	27	37	33.5	23	28.5	43	46	25	28.5	425.5	
17	45	19.5	46	39	39.5	28.5	49	26.5	42.5	37	47	27	47	50	47.5	591	**
19	35.5	49	36	35.5	29.5	42	39.5	47.5	46	44	46	41	37.5	37	23.5	589.5	**
21	48	39	49.5	41	50	17	50	2	51	3	51	3	51	51	51	557.5	
22	17.5	36.5	21.5	23	16	2	33	18	20	37	21	34.5	17	1	45.5	343.5	
23	17.5	29	25	3	1	46	43	19	22	12.5	39	14.5	27	26.5	16.5	341.5	
27	6	4.5	6	10	8.5	22	21.5	7	4.5	5	7	10.5	4	8	8.5	133	**
28	34	31.5	36	50	49	11	12.5	22.5	18.5	50	33	20.5	31.5	23	16.5	439.5	
29	50	4.5	34	18.5	7	4.5	14	8	17	7.5	48	5	17	2	1.5	238.5	
30	31.5	19.5	4	7.5	34.5	1	2	9	4.5	9	17.5	6	17	19.5	40	222.5	
31	10.5	21	4	18.5	12	23	20	34	26	43	17.5	40	13.5	19.5	12	314.5	
32	31.5	22	40	35.5	34.5	40	39.5	29	40	20	37	42	40.5	40	36.5	528	
33	28	1	10	14.5	12	37.5	32	12	7	7.5	11.5	10.5	9.5	12	16.5	221.5	
34	8	46.5	16.5	14.5	8.5	20.5	12.5	31.5	22	26.5	11.5	1	9.5	12	6.5	247.5	
35	1.5	38	25	5	5	20.5	18.5	31.5	15	26.5	10	31.5	17	8	1.5	254.5	
38	10.5	42	4	7.5	5	12	17	45	18.5	47	23.5	49	17	15.5	16.5	330	
39	20.5	17	16.5	20.5	2.5	28.5	23.5	41	50	39.5	1	20.5	9.5	23	8.5	322	
42	42	28	16.5	35.5	2.5	18.5	51	3	7	11	6	8	3	15.5	28.5	276	
43	28	7	12	7.5	46	6.5	5	5	3	6	5	12	6	4.5	6.5	160	**
44	42	43.5	49.5	42.5	22.5	39	37	6	26	32	42	50	48.5	37	28.5	546	
45	28	14	30	27.5	29.5	8.5	10	34	12.5	29.5	8.5	28.5	31.5	6	34	332	
46	44	16	48	44	43	25.5	8	42	47	20	49	36.5	50	44.5	45.5	563	
47	3	31.5	40	49	48	50	34	50	48	45	45	36.5	43.5	42	20	585.5	**

Organic C.

RANKINGS OF DATA PER SAMPLE

LAB:	SAMPLE: 11	12	14	15	16	17	18	19	20	23	24	25	26	27	28	SUM	
48	14.5	50	16.5	35.5	22.5	43.5	44	47.5	45	32	21	31.5	27	37	28.5	496	
49	49	33.5	44	45	44	45	47	36	31.5	2	37	48	37.5	46.5	49	595	**
50	6	43.5	30	47	47	49	45	38.5	29.5	48	37	31.5	30	31	20	533	
51	10.5	9	16.5	11.5	12	6.5	7	26.5	22	24.5	13.5	26	9.5	19.5	12	226.5	
52	38.5	48	36	38	36	34	35	43	36.5	39.5	26	38	35	48	34	565.5	
53	42	26	47	42.5	39.5	10	15.5	14	26	20	42	23.5	48.5	44.5	50	491	
54	14.5	30	16.5	14.5	22.5	43.5	37	22.5	26	20	42	23.5	27	15.5	28.5	383.5	
60	20.5	41	30	11.5	38	36	23.5	34	36.5	24.5	33	28.5	40.5	8	42.5	448	
62	35.5	18	8	25	29.5	32	26	16	15	17	30	17	20	32	39	360	
63	24	40	43	29.5	12	37.5	37	44	36.5	35	33	39	22	34.5	23.5	490.5	
64	47	13	40	1	29.5	16	25	22.5	44	29.5	3.5	8	1	4.5	34	318.5	
65	51	12	45	51	51	35	41	17	29.5	49	42	13	45	39	41	561.5	
67	14.5	15	1	2	22.5	8.5	30.5	38.5	7	16	2	23.5	27	49	3.5	260.5	
68	24	25	40	20.5	22.5	47	46	20	42.5	28	42	18	40.5	41	36.5	493.5	
70	33	36.5	23	31	29.5	27	11	1	1	46	27	2	24	30	14	336	
73	38.5	51	51	46	37	51	48	51	49	51	50	51	43.5	46.5	44	708.5	**
74	38.5	27	40	27.5	18.5	41	42	25	31.5	34	28.5	47	35	33	28.5	497	
76	10.5	45	30	33	41	13	6	30	40	42	33	45.5	35	28.5	38	470.5	
78	46	46.5	10	29.5	42	24	28.5	40	33.5	37	33	34.5	40.5	43	42.5	530.5	

WITH 51 LABS AND 15 SAMPLES THE APPROXIMATELY 5% TWO TAIL LIMITS OF THE RANK SUMS ARE 578 AND 202. RANK SUMS EXCEEDING THESE VALUES ARE MARKED WITH **.

ANNEX
Participating Laboratories

Secretaria de Agricultura INTA
Dr. H.J.M. Morras
Departamento de Suelos
1712 Castelar F.C.S.
ARGENTINA

CSIRO Division of Soils
Mr. T.A. Beech
Private Bag no. 2
Glen Osmond SA 5064
AUSTRALIA

Centre Nat. d'Agro Pedologie
Mr. A. Kogblevi
B.P. 988
Cotonou
BENIN

SNLCS-EMBRAPA
Dr. L. Bezerra de Oliveira
Rua Jardim Botanico 1024 Gavea
22460 Rio de Janeiro RJ
BRAZIL

Land Resource Research Inst.
Dr. B.H. Sheldrick
Neatby Bldg. Centr. Exp. Farm
Ottawa Ontario K1 A 0 C6
CANADA

Institute of Soil Science
Dr. Gong Zi-Tong
P.O. Box 821
Nanjing
CHINA

Instituto 'Agustin Codazzi'
Dr. C. Luna Zambrano
Apartado Aereo 6721
Bogota
COLOMBIA

Faculty of Agriculture
Prof. Dr. Shafic I. Abdel-Aal
University of Cairo
Giza
EGYPT

Bundesanst. Geowissenschaften
Dr. H. Lueken
Postfach 51 01 53
3000 Hannover 51
GERMANY Fed. Rep.

Nat. Bureau of Soil Survey
Dr. V.A.K. Sarma
Regional Centre, Hebbal
Bangalore 560 024
INDIA

Dept. of Primary Industries
Dr. R.C. Bruce
Meiers Road
Indooroopilly QLD 4068
AUSTRALIA

Institut fuer Bodenforschung
Prof. Dr. W.E.H. Blum
Gregor Mendelstrasse 33
A 1180 Wien
AUSTRIA

Geologisch Instituut
Prof. Dr. C. Sys
Krijgslaan 281
S8 B 9000 Gent
BELGIUM

Centre de Recherche d'Ekona
Dr. S.N. Lyonga
PMB 25
Buea
CAMEROUN

Analytical Services Laboratory
Dr. Y.P. Kalra
5320 122 Street
Edmonton Alberta
CANADA

INIA
Dr. Ing. E. Besoain M.
San Rosa 11610 Casil. 5427
Santiago
CHILE

Universidad de Costa Rica
Centro de Inv. Agronomicas
Prof. Elemer Bornemisza S.
Ciudad Univ. 'Rodrigo Facio'
COSTA RICA

ORSTOM
Dr. P. Pelloux
70-74, Route d'Aulnay
93140 Bondy
FRANCE

Research Inst.for Soil Science
Mrs. Dr. M. Redly
Herman Otto u. 15
1022 Budapest
HUNGARY

Centre for Soil Research
Dr. M. Sudjadi
Jalan Juanda 98
Bogor
INDONESIA

Soil Institute of Iran
Dr. M.H. Roozitalap
Kargar Shomali Avenue
Teheran
IRAN

Hokkaido Univ. Fac. Agriculture
Dr. Hiroki Imai
Kita 9, Nishi 9, Kita ku
Sapporo 060
JAPAN

Soil Management Branch
Mr. Lim Han Kuo
Jalan Mahameru
Kuala Lumpur 10-02
MALAYSIA

Soil Survey and Land Eval.Proj.
Mevr. M. Bovee MOZAMBIQUE
Koeriersdienst Maputo
P.B. 20061
2500 EB Den Haag

ISRIC
Dr. L.P. van Reeuwijk
P.O. Box 353
6700 AJ Wageningen
The NETHERLANDS

Soil Bureau DSIR
Mr. L.C. Blakemore
Private bag
Lower Hutt
NEW ZEALAND

I.I.T.A.-NIGERIA
Dr. J.L. Pleysier
c/o 26 Dingwall Road
Croydon CR9 0 EE
UNITED KINGDOM

Soil Research Division
Dr. Modesto R. Recel
P.O. Box 1848
Ermita Manila
PHILIPPINES

Centro de Estudos Pedologia
Prof. Dr. Rui Pinto Ricardo
Tapada de Ajuda
1399 Lisboa, Codex
PORTUGAL

Departamento de Edafologia
M. Tejedor o' J. Hernandez
La Laguna Tenerife
Islas Canarias
SPAIN

Min. of Agric. Soil Survey Unit
Mr. G. Thompson
Hope Gardens
Kingston 6
JAMAICA

Lab. of Soils Kyoto Univ.
Dr. K. Kyuma
Kitashirakawa, Sakyo ku
Kyoto 606
JAPAN

Centro de Edafologia
Dr. J.D. Etchevers
Colegio de Postgraduados
56230 Chapingo
MEXICO

Dept. Soil Science and Geology
Mr. L. Th. Begheyn
Postbus 37
Wageningen
The NETHERLANDS

Bedrijfslab. voor Grondonderz.
Dr. F. Kadijk
Postbus 115
6860 AC Oosterbeek
The NETHERLANDS

Forest Research Institute
Mrs. G. Nicholson
Private bag
Rotorua
NEW ZEALAND

Soil Survey of Pakistan
Dr. Gulam Saeed Khan
P.O. Shahnoor Multan Road
Lahore
PAKISTAN

IRRI
Mrs. Ruby U. Castro
P.O. Box 933
Manila
PHILIPPINES

Land and Water Develop. Div.
Mr. Noel Wills
P.M.Bag 187
Freetown
SIERRA LEONE

Land Use Division
Dr. W.D. Joshua
P.O.B. 1138
Colombo 7
SRI LANKA

Soil Survey Administration
Mr. Abdel Moniem M.A. Kafil
P.O.Box 388
Wad Medani
SUDAN

Swedish University Agric. Sci.
Dept. of Soil Sciences
Dr. Arne Anderson
Box 7014 S-750 07 Uppsala
SWEDEN

Soil Analysis Division
Dr. Somnik Buachanda
Paholyotin Road, Bangkhen
Bangkok 10900
THAILAND

The Macaulay Inst. Soil Research
Dr. M.J. Wilson
Craigiebuckler
Aberdeen AB9 2 QJ
UNITED KINGDOM

Rothamsted Experimental Station
Dr. P. Loveland
Harpenden
Herts AL5 2 JQ
UNITED KINGDOM

Lab. Soil Science Plant Nutrit.
Dr. V.J.G. Houba
De Dreyen 3
6703 BC Wageningen
The NETHERLANDS

Agricultural Research Service
Mr. N. Theodorou
Land Reclamation Institute
574 00 Sindos
GREECE

Department of Soil Science
Dr. I.J. Ibanga
P.M.B. 1044
Samaru Zaria
NIGERIA

College of Tropical Agriculture
Mr. G.Y. Tsuji
2500 Dole Street Krauss Hall 22
Honolulu Hawaii 96822
USA

Dienst Bodemkartering
Ir. J.L.H.J. Oomen
Coppenamestr./Comm.Weytingweg
District Wanica
SURINAME

A.C.S.A.D.
Dr. Touhama Mouheich
P.O. Box 2440
Damascus
SYRIA

Direction des Sols
Mme. O. Naanaa Wahida
Route de la Soukra
Ariana
TUNISIA

Trop. Soil Analysis Unit LRCD
Mr. R. Baker
Coley Park
Reading
UNITED KINGDOM

Chem. and Soil Research Inst.
Mr. J.G. Bennett
P.O.Box 8100
Causeway, Harare
ZIMBABWE

Plant Protec. and Agric.Station
Mr. Nandor Bognar
Velence 2481
Fout 230
HUNGARY

Koronivia Research Station
Dr. R.N. Duve
P.O. Box 77
Nausori
FIJI

Soils Division JVA
Mr. K.F. Hamdoukh
P.O.B. 2769
Amman
JORDAN