

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 150911

Boron

Statistical Summary

Analytes: 20

Labs Reporting: 47

Issue Date : 10/31/2015

Analyte Code	Analyte	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	IA %RSD	Average Range (R-bar)	Horwitz %RSD
010	Total Nitrogen (%)	2	2	0.0725	0.0318								
041	Direct Available Phosphorus as P2O5 (%)	2	2	0.0775	0.0530								
050	Soluble Potassium as K2O (%)	3	2	0.2235	0.0446	0.2235		0.0445	0.0223	19.93%		0.0090	5.01%
060	Water (Free) (%)	2	2	1.159	0.4363								
101	Acid Soluble Calcium (%)	5	5	7.017	0.1552	7.017		0.1552	0.0491	2.21%		0.0957	2.98%
121	Acid Soluble Magnesium (%)	5	5	5.353	0.3086	5.353		0.3086	0.0976	5.77%		0.1327	3.11%
148	Total Sulfur (%)	3	3	0.2005	0.1155	0.2005		0.1155	0.0472	57.63%		0.0410	5.09%
165	Acid Soluble Boron (10.5%)	45	44	9.901	1.835	10.13	1.0000	0.6302	0.0672	6.22%	4.93%	0.1505	2.82%
171	Water Soluble Boron (%)	1		0.0185									
181	Acid Soluble Cadmium (ppm)	1		30.25									
191	Acid Soluble Chromium (ppm)	2	2	55.74	4.151								
202	Acid Soluble Cobalt (ppm)	2	2	18.59	3.376								
221	Acid Soluble Copper (%)	2	2	0.0009	0.0001								
241	Acid Soluble Iron (%)	3	3	0.8700	0.0135	0.8700		0.0135	0.0055	1.55%		0.0236	4.08%
251	Acid Soluble Lead (ppm)	1		3.152									
261	Acid Soluble Manganese (%)	3	3	0.0138	0.0011	0.0138		0.0011	0.0004	7.93%		0.0036	7.62%
289	Acid Soluble Molybdenum (ppm)	1		4.006									
291	Acid Soluble Nickel (ppm)	2	2	24.39	5.425								
311	Sodium (%)	3	3	0.0912	0.0527	0.0912		0.0527	0.0215	57.74%		0.0123	5.74%
321	Acid Soluble Zinc (%)	3	3	0.0064	0.0040	0.0064		0.0040	0.0016	62.64%		0.0000	8.56%

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Lab Values

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Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total Nitrogen (%)	0185	0.0500	0.0200	0.0725	0.0318	0.0170	2	-0.71	010.12	0
010	Total Nitrogen (%)	0354	0.0950	0.0140	0.0725	0.0318	0.0170	2	0.71	010.60	0
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0400	0.0020	0.0775	0.0530	0.0060	2	-0.71	041.60	0
041	Direct Available Phosphorus as P2O5 (%)	0185	0.1150	0.0100	0.0775	0.0530	0.0060	2	0.71	041.11	0
050	Soluble Potassium as K2O (%)	0354	0.1920	0.0080	0.2235	0.0445	0.0090	2	-0.71	050.52	0
050	Soluble Potassium as K2O (%)	0482	0.2550	0.0100	0.2235	0.0445	0.0090	2	0.71	050.99	0
050	Soluble Potassium as K2O (%)	0185	0.0000	0.0000	0.2235	0.0445	0.0090	2	-5.02	050.32	4
060	Water (Free) (%)	0513	0.8500	0.0200	1.159	0.4363	0.0124	2	-0.71	060.99	0
060	Water (Free) (%)	0416	1.467	0.0048	1.159	0.4363	0.0124	2	0.71	060.00	0
101	Acid Soluble Calcium (%)	0506	6.750	0.0800	7.017	0.1552	0.0957	5	-1.72	101.99	0
101	Acid Soluble Calcium (%)	0482	7.025	0.1700	7.017	0.1552	0.0957	5	0.05	101.30	0
101	Acid Soluble Calcium (%)	0055	7.070	0.0800	7.017	0.1552	0.0957	5	0.34	101.32	0
101	Acid Soluble Calcium (%)	0494	7.097	0.0263	7.017	0.1552	0.0957	5	0.51	101.33	0
101	Acid Soluble Calcium (%)	0354	7.143	0.1220	7.017	0.1552	0.0957	5	0.81	101.30	0
121	Acid Soluble Magnesium (%)	0506	4.995	0.2300	5.353	0.3086	0.1327	5	-1.16	121.99	0
121	Acid Soluble Magnesium (%)	0354	5.128	0.1100	5.353	0.3086	0.1327	5	-0.73	121.30	0
121	Acid Soluble Magnesium (%)	0482	5.315	0.2300	5.353	0.3086	0.1327	5	-0.12	121.30	0
121	Acid Soluble Magnesium (%)	0494	5.595	0.0737	5.353	0.3086	0.1327	5	0.79	121.33	0
121	Acid Soluble Magnesium (%)	0055	5.730	0.0200	5.353	0.3086	0.1327	5	1.22	121.32	0
148	Total Sulfur (%)	0354	0.1080	0.0420	0.2005	0.1155	0.0410	3	-0.80	148.99	0
148	Total Sulfur (%)	0494	0.1635	0.0011	0.2005	0.1155	0.0410	3	-0.32	148.07	0
148	Total Sulfur (%)	0482	0.3300	0.0800	0.2005	0.1155	0.0410	3	1.12	148.99	0
165	Acid Soluble Boron (10.5%)	0406	2.645*	0.2500	10.13	0.6302	0.1505	44	-11.89	165.30	0
165	Acid Soluble Boron (10.5%)	0309	4.550*	0.7400	10.13	0.6302	0.1505	44	-8.86	165.70	0
165	Acid Soluble Boron (10.5%)	0055	6.874*	0.2760	10.13	0.6302	0.1505	44	-5.17	165.00	0
165	Acid Soluble Boron (10.5%)	0506	7.965*	0.3500	10.13	0.6302	0.1505	44	-3.44	165.00	0
165	Acid Soluble Boron (10.5%)	0324	8.746*	0.4240	10.13	0.6302	0.1505	44	-2.20	165.30	0
165	Acid Soluble Boron (10.5%)	0518	8.940*	0.2200	10.13	0.6302	0.1505	44	-1.90	165.00	0
165	Acid Soluble Boron (10.5%)	0354	9.307	0.3620	10.13	0.6302	0.1505	44	-1.31	165.30	0
165	Acid Soluble Boron (10.5%)	0457	9.385	0.0500	10.13	0.6302	0.1505	44	-1.19	165.99	0
165	Acid Soluble Boron (10.5%)	0029	9.416	0.2150	10.13	0.6302	0.1505	44	-1.14	165.00	0
165	Acid Soluble Boron (10.5%)	0481	9.530	0.0200	10.13	0.6302	0.1505	44	-0.96	165.00	0
165	Acid Soluble Boron (10.5%)	0230	9.580	0.0800	10.13	0.6302	0.1505	44	-0.88	165.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
165	Acid Soluble Boron (10.5%)	0102	9.761	0.0515	10.13	0.6302	0.1505	44	-0.59	165.99	0
165	Acid Soluble Boron (10.5%)	0394	9.800	0.0000	10.13	0.6302	0.1505	44	-0.53	165.30	0
165	Acid Soluble Boron (10.5%)	0292	9.810	0.0600	10.13	0.6302	0.1505	44	-0.52	165.30	0
165	Acid Soluble Boron (10.5%)	0220	9.890	0.0400	10.13	0.6302	0.1505	44	-0.39	165.70	0
165	Acid Soluble Boron (10.5%)	0482	9.960	0.0800	10.13	0.6302	0.1505	44	-0.28	165.99	0
165	Acid Soluble Boron (10.5%)	0023	10.03	0.0400	10.13	0.6302	0.1505	44	-0.17	165.30	0
165	Acid Soluble Boron (10.5%)	0368	10.09	0.0016	10.13	0.6302	0.1505	44	-0.07	165.99	0
165	Acid Soluble Boron (10.5%)	0472	10.09	0.1850	10.13	0.6302	0.1505	44	-0.07	165.99	0
165	Acid Soluble Boron (10.5%)	0307	10.14	0.1390	10.13	0.6302	0.1505	44	0.01	165.30	0
165	Acid Soluble Boron (10.5%)	0485	10.18	0.1400	10.13	0.6302	0.1505	44	0.07	165.30	0
165	Acid Soluble Boron (10.5%)	0498	10.20	0.2000	10.13	0.6302	0.1505	44	0.10	165.00	0
165	Acid Soluble Boron (10.5%)	0043	10.28	0.0500	10.13	0.6302	0.1505	44	0.22	165.99	0
165	Acid Soluble Boron (10.5%)	0090	10.28	0.1600	10.13	0.6302	0.1505	44	0.23	165.30	0
165	Acid Soluble Boron (10.5%)	0095	10.29	0.3500	10.13	0.6302	0.1505	44	0.24	165.99	0
165	Acid Soluble Boron (10.5%)	0025	10.30	0.4400	10.13	0.6302	0.1505	44	0.26	165.30	0
165	Acid Soluble Boron (10.5%)	0377	10.30	0.1600	10.13	0.6302	0.1505	44	0.26	165.30	0
165	Acid Soluble Boron (10.5%)	0389	10.35	0.1500	10.13	0.6302	0.1505	44	0.33	165.99	0
165	Acid Soluble Boron (10.5%)	0433	10.35	0.0253	10.13	0.6302	0.1505	44	0.35	165.30	0
165	Acid Soluble Boron (10.5%)	0096	10.40	0.2000	10.13	0.6302	0.1505	44	0.42	165.30	0
165	Acid Soluble Boron (10.5%)	0494	10.41	0.1847	10.13	0.6302	0.1505	44	0.43	165.30	0
165	Acid Soluble Boron (10.5%)	0397	10.42	0.0330	10.13	0.6302	0.1505	44	0.45	165.00	0
165	Acid Soluble Boron (10.5%)	0513	10.48	0.0400	10.13	0.6302	0.1505	44	0.55	165.99	0
165	Acid Soluble Boron (10.5%)	0360	10.49	0.0600	10.13	0.6302	0.1505	44	0.56	165.99	0
165	Acid Soluble Boron (10.5%)	0402	10.62	0.1340	10.13	0.6302	0.1505	44	0.78	165.30	0
165	Acid Soluble Boron (10.5%)	0452	10.65	0.0300	10.13	0.6302	0.1505	44	0.81	165.30	0
165	Acid Soluble Boron (10.5%)	0416	10.67	0.0100	10.13	0.6302	0.1505	44	0.84	165.70	0
165	Acid Soluble Boron (10.5%)	0291	10.69	0.0100	10.13	0.6302	0.1505	44	0.87	165.30	0
165	Acid Soluble Boron (10.5%)	0231	10.74	0.0800	10.13	0.6302	0.1505	44	0.96	165.99	0
165	Acid Soluble Boron (10.5%)	0234	10.90	0.0700	10.13	0.6302	0.1505	44	1.21	165.30	0
165	Acid Soluble Boron (10.5%)	0169	11.19	0.0300	10.13	0.6302	0.1505	44	1.67	165.00	0
165	Acid Soluble Boron (10.5%)	0486	11.36	0.2800	10.13	0.6302	0.1505	44	1.94	165.99	0
165	Acid Soluble Boron (10.5%)	0483	12.05	0.1000	10.13	0.6302	0.1505	44	3.04	165.99	0
165	Acid Soluble Boron (10.5%)	0325	15.55	0.1000	10.13	0.6302	0.1505	44	8.59	165.00	0
165	Acid Soluble Boron (10.5%)	0515	11.10	1.087	10.13	0.6302	0.1505	44	1.53	165.99	1
171	Water Soluble Boron (%)	0027	0.0185	0.0010			0.0010	1			0
181	Acid Soluble Cadmium (ppm)	0482	30.25	0.1000			0.1000	1			0
191	Acid Soluble Chromium (ppm)	0482	52.80	0.0000	55.74	4.151	1.363	2	-0.71	191.30	0
191	Acid Soluble Chromium (ppm)	0494	58.67	2.725	55.74	4.151	1.363	2	0.71	191.33	0
202	Acid Soluble Cobalt (ppm)	0482	16.20	0.0000	18.59	3.376	1.635	2	-0.71	202.30	0
202	Acid Soluble Cobalt (ppm)	0494	20.97	3.269	18.59	3.376	1.635	2	0.71	202.33	0
221	Acid Soluble Copper (%)	0494	0.0009	0.0001	0.0009	0.0001	0.0001	2	-0.71	221.33	0
221	Acid Soluble Copper (%)	0354	0.0010	0.0000	0.0009	0.0001	0.0001	2	0.71	221.30	0
241	Acid Soluble Iron (%)	0494	0.8590	0.0529	0.8700	0.0135	0.0236	3	-0.82	241.33	0

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			Value	Range	Rob Mean	Rob SD	R-bar				
241	Acid Soluble Iron (%)	0354	0.8660	0.0080	0.8700	0.0135	0.0236	3	-0.30	241.30	0
241	Acid Soluble Iron (%)	0482	0.8850	0.0100	0.8700	0.0135	0.0236	3	1.11	241.30	0
251	Acid Soluble Lead (ppm)	0494	3.152	0.1884			0.1884	1			0
261	Acid Soluble Manganese (%)	0354	0.0130	0.0000	0.0138	0.0011	0.0036	3	-0.69	261.30	0
261	Acid Soluble Manganese (%)	0494	0.0133	0.0007	0.0138	0.0011	0.0036	3	-0.46	261.35	0
261	Acid Soluble Manganese (%)	0482	0.0150	0.0100	0.0138	0.0011	0.0036	3	1.15	261.31	0
289	Acid Soluble Molybdenum (ppm)	0494	4.006	0.1987			0.1987	1			0
291	Acid Soluble Nickel (ppm)	0482	20.55	0.7000	24.39	5.425	0.4095	2	-0.71	291.30	0
291	Acid Soluble Nickel (ppm)	0494	28.22	0.1190	24.39	5.425	0.4095	2	0.71	291.33	0
311	Sodium (%)	0482	0.0600	0.0000	0.0912	0.0527	0.0123	3	-0.59	311.99	0
311	Sodium (%)	0494	0.0616	0.0068	0.0912	0.0527	0.0123	3	-0.56	311.33	0
311	Sodium (%)	0354	0.1520	0.0300	0.0912	0.0527	0.0123	3	1.15	311.99	0
321	Acid Soluble Zinc (%)	0494	0.0021	0.0000	0.0064	0.0040	0.0000	3	-1.07	321.33	0
321	Acid Soluble Zinc (%)	0354	0.0070	0.0000	0.0064	0.0040	0.0000	3	0.16	321.30	0
321	Acid Soluble Zinc (%)	0482	0.0100	0.0000	0.0064	0.0040	0.0000	3	0.91	321.30	0

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier and a 4 flag indicates rejected due to 0 value submitted. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are included for information only (Grey). An offset lab value with an astrix indicates that the value is lower than the Analyte value less the IA. Method or Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.