

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Methods: 44

Sample # 150911

Statistical Summary

Labs Reporting: 47

Boron

Issue Date : 10/31/2015

Method Code	Analyte & Method	# 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
010.12	Total Nitrogen, Salicylic (%)	1		0.0500									
010.60	Total Nitrogen, Combustion (%)	1		0.0950									
041.11	Direct Available Phosphorus as P2O5, Gravimetric Q... (%)	1		0.1150									
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ... (%)	1		0.0400									
050.32	Soluble Potassium as K2O, AA (Citrate-EDTA) (%)	1		0.0000									
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	1		0.1920									
050.99	Soluble Potassium as K2O, Other (%)	1		0.2550									
060.00	Water (Free), Vacuum Oven (%)	1		1.467									
060.99	Water (Free), Other (%)	1		0.8500									
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	2	2	7.084	0.0834								
101.32	Acid Soluble Calcium, ICP, test portion 2006.03A-C (%)	1		7.070									
101.33	Acid Soluble Calcium, ICP, test portion 2006.03A-C... (%)	1		7.097									
101.99	Acid Soluble Calcium, Other (%)	1		6.750									
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (%)	2	2	5.222	0.1322								
121.32	Acid Soluble Magnesium, ICP, test portion 2006.03A... (%)	1		5.730									
121.33	Acid Soluble Magnesium, ICP, test portion 2006.03A... (%)	1		5.595									
121.99	Acid Soluble Magnesium, Other (%)	1		4.995									
148.07	Total Sulfur, ICP, test portion as in 2006.03 modi... (%)	1		0.1635									
148.99	Total Sulfur, Other (%)	2	2	0.2190	0.1570								
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	9	9	10.01	2.450	9.635	1.0000	1.526	0.3596	15.84%	5.19%	0.1604	2.84%
165.30	Acid Soluble Boron , ICP, test portion in 982.01 ... (10.5%)	18	18	9.753	1.847	10.21	1.0000	0.4349	0.0725	4.26%	4.90%	0.1572	2.82%
165.70	Acid Soluble Boron , Titrimetric (10.5%)	3	3	8.368	3.329	8.368	1.0000	3.329	1.359	39.79%	5.97%	0.2633	2.91%
165.99	Acid Soluble Boron , Other (10.5%)	15	14	10.35	0.6942	10.26	1.0000	0.4586	0.0867	4.47%	4.87%	0.1113	2.82%
171.99	Water Soluble Boron , Other (%)	1		0.0185									
181.30	Acid Soluble Cadmium , ICP (ppm)	1		30.25									
191.30	Acid Soluble Chromium , ICP (ppm)	1		52.80									
191.33	Acid Soluble Chromium , ICP, 2006.03 modified w/9... (ppm)	1		58.67									
202.30	Acid Soluble Cobalt , ICP (ppm)	1		16.20									
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w/9:3... (ppm)	1		20.97									
221.30	Acid Soluble Copper , ICP, test portion inorganic... (%)	1		0.0010									
221.33	Acid Soluble Copper , ICP, test portion 2006.03A-... (%)	1		0.0009									

Method Code	Analyte & Method	# 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
241.30	Acid Soluble Iron , ICP, test portion inorganic 96... (%)	2	2	0.8755	0.0134								
241.33	Acid Soluble Iron , ICP, test portion 2006.03A-C, ... (%)	1		0.8590									
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/9:3 H... (ppm)	1		3.152									
261.30	Acid Soluble Manganese , ICP, test portion 972.02a (%)	1		0.0130									
261.31	Acid Soluble Manganese , ICP, test portion 972.02b (%)	1		0.0150									
261.35	Acid Soluble Manganese , ICP, test portion 2006.0... (%)	1		0.0133									
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modified w... (ppm)	1		4.006									
291.30	Acid Soluble Nickel , ICP (ppm)	1		20.55									
291.33	Acid Soluble Nickel , ICP, 2006.03 modified w/9:3... (ppm)	1		28.22									
311.33	Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl test ... (%)	1		0.0616									
311.99	Sodium, Other (%)	2	2	0.1060	0.0651								
321.30	Acid Soluble Zinc , ICP, test portion inorganic 9... (%)	2	2	0.0085	0.0021								
321.33	Acid Soluble Zinc , ICP, test portion 2006.03A-C,... (%)	1		0.0021									

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 150911

Method Precision Report

Issue Date : 10/31/2015

Boron

Method Code	Analyte & Method	# Tests Submitted	# Tests Used in Precision Calcs	Mean	SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	9	8	9.316	1.387	1.384	0.1448	1.391	14.85%	1.55%	14.93%	9.604
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (10.5%)	18	17	10.17	0.5286	0.5188	0.1433	0.5382	5.10%	1.41%	5.29%	3.756
165.99	Acid Soluble Boron , Other (10.5%)	15	13	10.22	0.5124	0.5069	0.1056	0.5178	4.96%	1.03%	5.07%	4.906

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Methods: 44

Sample # 150911

Lab Values

Labs Reporting: 47

Boron

Issue Date : 10/31/2015

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010.12	Total Nitrogen, Salicylic (%)	0185	0.0500	0.0200			0.0200	1			0
010.60	Total Nitrogen, Combustion (%)	0354	0.0950	0.0140			0.0140	1			0
041.11	Direct Available Phosphorus as P2O5, Gravimet... (%)	0185	0.1150	0.0100			0.0100	1			0
041.60	Direct Available Phosphorus as P2O5, Citrate-... (%)	0354	0.0400	0.0020			0.0020	1			0
050.32	Soluble Potassium as K2O, AA (Citrate-EDTA) (%)	0185	0.0000	0.0000			0.0000	0			4
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)	0354	0.1920	0.0080			0.0080	1			0
050.99	Soluble Potassium as K2O, Other (%)	0482	0.2550	0.0100			0.0100	1			0
060.00	Water (Free), Vacuum Oven (%)	0416	1.467	0.0048			0.0048	1			0
060.99	Water (Free), Other (%)	0513	0.8500	0.0200			0.0200	1			0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0482	7.025	0.1700	7.084	0.0834	0.1460	2	-0.71	0%	0
101.30	Acid Soluble Calcium, ICP, test portion inorg... (%)	0354	7.143	0.1220	7.084	0.0834	0.1460	2	0.71	0%	0
101.32	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0055	7.070	0.0800			0.0800	1			0
101.33	Acid Soluble Calcium, ICP, test portion 2006.... (%)	0494	7.097	0.0263			0.0263	1			0
101.99	Acid Soluble Calcium, Other (%)	0506	6.750	0.0800			0.0800	1			0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0354	5.128	0.1100	5.222	0.1322	0.1700	2	-0.71	1%	0
121.30	Acid Soluble Magnesium, ICP, test portion ino... (%)	0482	5.315	0.2300	5.222	0.1322	0.1700	2	0.71	1%	0
121.32	Acid Soluble Magnesium, ICP, test portion 200... (%)	0055	5.730	0.0200			0.0200	1			0
121.33	Acid Soluble Magnesium, ICP, test portion 200... (%)	0494	5.595	0.0737			0.0737	1			0
121.99	Acid Soluble Magnesium, Other (%)	0506	4.995	0.2300			0.2300	1			0
148.07	Total Sulfur, ICP, test portion as in 2006.03... (%)	0494	0.1635	0.0011			0.0011	1			0
148.99	Total Sulfur, Other (%)	0354	0.1080	0.0420	0.2190	0.1570	0.0610	2	-0.71	25%	0
148.99	Total Sulfur, Other (%)	0482	0.3300	0.0800	0.2190	0.1570	0.0610	2	0.71	25%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0055	6.874*	0.2760	9.635	1.526	0.1604	9	-1.81	14%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0506	7.965*	0.3500	9.635	1.526	0.1604	9	-1.09	9%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0518	8.940*	0.2200	9.635	1.526	0.1604	9	-0.46	4%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0029	9.416	0.2150	9.635	1.526	0.1604	9	-0.14	1%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0481	9.530	0.0200	9.635	1.526	0.1604	9	-0.07	1%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0498	10.20	0.2000	9.635	1.526	0.1604	9	0.37	3%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0397	10.42	0.0330	9.635	1.526	0.1604	9	0.51	4%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0169	11.19	0.0300	9.635	1.526	0.1604	9	1.02	8%	0
165.00	Acid Soluble Boron , Spectrophotometric (10.5%)	0325	15.55	0.1000	9.635	1.526	0.1604	9	3.88	31%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0406	2.645*	0.2500	10.21	0.4349	0.1572	18	-17.39	37%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0324	8.746*	0.4240	10.21	0.4349	0.1572	18	-3.36	7%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0354	9.307	0.3620	10.21	0.4349	0.1572	18	-2.07	4%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0394	9.800	0.0000	10.21	0.4349	0.1572	18	-0.93	2%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0292	9.810	0.0600	10.21	0.4349	0.1572	18	-0.91	2%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0023	10.03	0.0400	10.21	0.4349	0.1572	18	-0.40	1%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0307	10.14	0.1390	10.21	0.4349	0.1572	18	-0.15	0%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0485	10.18	0.1400	10.21	0.4349	0.1572	18	-0.06	0%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0090	10.28	0.1600	10.21	0.4349	0.1572	18	0.17	0%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0025	10.30	0.4400	10.21	0.4349	0.1572	18	0.22	0%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0377	10.30	0.1600	10.21	0.4349	0.1572	18	0.22	0%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0433	10.35	0.0253	10.21	0.4349	0.1572	18	0.34	1%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0096	10.40	0.2000	10.21	0.4349	0.1572	18	0.45	1%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0494	10.41	0.1847	10.21	0.4349	0.1572	18	0.46	1%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0402	10.62	0.1340	10.21	0.4349	0.1572	18	0.96	2%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0452	10.65	0.0300	10.21	0.4349	0.1572	18	1.01	2%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0291	10.69	0.0100	10.21	0.4349	0.1572	18	1.10	2%	0
165.30	Acid Soluble Boron , ICP, test portion in 98... (10.5%)	0234	10.90	0.0700	10.21	0.4349	0.1572	18	1.59	3%	0
165.70	Acid Soluble Boron , Titrimetric (10.5%)	0309	4.550*	0.7400	8.368	3.329	0.2633	3	-1.15	23%	0
165.70	Acid Soluble Boron , Titrimetric (10.5%)	0220	9.890	0.0400	8.368	3.329	0.2633	3	0.46	9%	0
165.70	Acid Soluble Boron , Titrimetric (10.5%)	0416	10.67	0.0100	8.368	3.329	0.2633	3	0.69	14%	0
165.99	Acid Soluble Boron , Other (10.5%)	0457	9.385	0.0500	10.26	0.4586	0.1113	14	-1.91	4%	0
165.99	Acid Soluble Boron , Other (10.5%)	0230	9.580	0.0800	10.26	0.4586	0.1113	14	-1.48	3%	0
165.99	Acid Soluble Boron , Other (10.5%)	0102	9.761	0.0515	10.26	0.4586	0.1113	14	-1.09	2%	0
165.99	Acid Soluble Boron , Other (10.5%)	0482	9.960	0.0800	10.26	0.4586	0.1113	14	-0.65	1%	0
165.99	Acid Soluble Boron , Other (10.5%)	0368	10.09	0.0016	10.26	0.4586	0.1113	14	-0.37	1%	0
165.99	Acid Soluble Boron , Other (10.5%)	0472	10.09	0.1850	10.26	0.4586	0.1113	14	-0.37	1%	0
165.99	Acid Soluble Boron , Other (10.5%)	0043	10.28	0.0500	10.26	0.4586	0.1113	14	0.03	0%	0
165.99	Acid Soluble Boron , Other (10.5%)	0095	10.29	0.3500	10.26	0.4586	0.1113	14	0.05	0%	0
165.99	Acid Soluble Boron , Other (10.5%)	0389	10.35	0.1500	10.26	0.4586	0.1113	14	0.19	0%	0
165.99	Acid Soluble Boron , Other (10.5%)	0513	10.48	0.0400	10.26	0.4586	0.1113	14	0.48	1%	0
165.99	Acid Soluble Boron , Other (10.5%)	0360	10.49	0.0600	10.26	0.4586	0.1113	14	0.50	1%	0
165.99	Acid Soluble Boron , Other (10.5%)	0231	10.74	0.0800	10.26	0.4586	0.1113	14	1.05	2%	0
165.99	Acid Soluble Boron , Other (10.5%)	0486	11.36	0.2800	10.26	0.4586	0.1113	14	2.40	5%	0
165.99	Acid Soluble Boron , Other (10.5%)	0483	12.05	0.1000	10.26	0.4586	0.1113	14	3.90	9%	0
165.99	Acid Soluble Boron , Other (10.5%)	0515	11.10	1.087	10.26	0.4586	0.1113	14	1.83	4%	1
171.99	Water Soluble Boron , Other (%)	0027	0.0185	0.0010			0.0010	1			0
181.30	Acid Soluble Cadmium , ICP (ppm)	0482	30.25	0.1000			0.1000	1			0
191.30	Acid Soluble Chromium , ICP (ppm)	0482	52.80	0.0000			0.0000	1			0
191.33	Acid Soluble Chromium , ICP, 2006.03 modifie... (ppm)	0494	58.67	2.725			2.725	1			0
202.30	Acid Soluble Cobalt , ICP (ppm)	0482	16.20	0.0000			0.0000	1			0
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified ... (ppm)	0494	20.97	3.269			3.269	1			0
221.30	Acid Soluble Copper , ICP, test portion inor... (%)	0354	0.0010	0.0000			0.0000	1			0
221.33	Acid Soluble Copper , ICP, test portion 2006... (%)	0494	0.0009	0.0001			0.0001	1			0
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0354	0.8660	0.0080	0.8755	0.0134	0.0090	2	-0.71	1%	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Threshold %RSD	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
241.30	Acid Soluble Iron , ICP, test portion inorgan... (%)	0482	0.8850	0.0100	0.8755	0.0134	0.0090	2	0.71	1%	0
241.33	Acid Soluble Iron , ICP, test portion 2006.03... (%)	0494	0.8590	0.0529			0.0529	1			0
251.33	Acid Soluble Lead , ICP, 2006.03 modified w/... (ppm)	0494	3.152	0.1884			0.1884	1			0
261.30	Acid Soluble Manganese , ICP, test portion 9... (%)	0354	0.0130	0.0000			0.0000	1			0
261.31	Acid Soluble Manganese , ICP, test portion 9... (%)	0482	0.0150	0.0100			0.0100	1			0
261.35	Acid Soluble Manganese , ICP, test portion 2... (%)	0494	0.0133	0.0007			0.0007	1			0
289.33	Acid Soluble Molybdenum , ICP, 2006.03 modif... (ppm)	0494	4.006	0.1987			0.1987	1			0
291.30	Acid Soluble Nickel , ICP (ppm)	0482	20.55	0.7000			0.7000	1			0
291.33	Acid Soluble Nickel , ICP, 2006.03 modified ... (ppm)	0494	28.22	0.1190			0.1190	1			0
311.33	Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl ... (%)	0494	0.0616	0.0068			0.0068	1			0
311.99	Sodium, Other (%)	0482	0.0600	0.0000	0.1060	0.0651	0.0150	2	-0.71	22%	0
311.99	Sodium, Other (%)	0354	0.1520	0.0300	0.1060	0.0651	0.0150	2	0.71	22%	0
321.30	Acid Soluble Zinc , ICP, test portion inorga... (%)	0354	0.0070	0.0000	0.0085	0.0021	0.0000	2	-0.71	9%	0
321.30	Acid Soluble Zinc , ICP, test portion inorga... (%)	0482	0.0100	0.0000	0.0085	0.0021	0.0000	2	0.71	9%	0
321.33	Acid Soluble Zinc , ICP, test portion 2006.0... (%)	0494	0.0021	0.0000			0.0000	1			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.