

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 170311

Grade 28-0-0 Liquid SR

Statistical Summary

Analytes: 26

Labs Reporting: 73

Issue Date : 04/30/2017

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
001	Ammoniacal Nitrogen (%)	3	3	3.268	4.159	3.268		4.159	3.002	127.26%		0.0716	3.35%
005	Urea Nitrogen (%)	9	8	8.826	3.494	8.018		1.704	0.7533	21.26%		0.0875	2.92%
007	Urea (%)	6	6	12.36	10.69	8.789		2.550	1.301	29.01%		0.2535	2.88%
010	Total Nitrogen (28%)	77	76	28.30	0.3711	28.31	0.8346	0.3561	0.0511	1.26%	1.47%	0.1513	2.42%
020	Total Phosphorus as P2O5 (%)	3	3	0.0270	0.0459	0.0270		0.0459	0.0331	170.16%		0.0000	6.89%
041	Direct Available Phosphorus as P2O5 (%)	2	1	0.1000									
050	Soluble Potassium as K2O (%)	7	5	0.5057	0.2793	0.5057		0.2793	0.1561	55.23%		0.0162	4.43%
101	Acid Soluble Calcium (%)	2	1	0.0420									
121	Acid Soluble Magnesium (%)	2	2	0.0063	0.0088								
148	Total Sulfur (%)	1		0.0085									
149	Sulfur - HNO3 soluble (%)	2	2	0.0007	0.0008								
151	Acid Soluble Arsenic (ppm)	1		0.0500									
165	Acid Soluble Boron (%)	3	2	0.0034	0.0037	0.0034		0.0037	0.0033	109.99%		0.0021	9.42%
181	Acid Soluble Cadmium (ppm)	3	3	0.0263	0.0249	0.0263		0.0249	0.0180	94.69%		0.0052	27.66%
191	Acid Soluble Chromium (ppm)	2	2	0.6475	0.8026								
202	Acid Soluble Cobalt (ppm)	1		0.0100									
221	Acid Soluble Copper (%)	2	2	0.0011	0.0013								
241	Acid Soluble Iron (%)	3	2	0.0053	0.0067	0.0053		0.0067	0.0059	126.68%		0.0025	8.81%
251	Acid Soluble Lead (ppm)	2	2	0.1300	0.0212								
261	Acid Soluble Manganese (%)	2	1	0.0007									
281	Acid Soluble Mercury (ppm)	1		0.0450									
289	Acid Soluble Molybdenum (ppm)	2	2	0.1485	0.0094								
291	Acid Soluble Nickel (ppm)	2	2	0.0585	0.0304								
301	Acid Soluble Selenium (ppm)	2	2	0.8165	1.141								
311	Sodium (%)	3	3	0.0663	0.0443	0.0663		0.0443	0.0320	66.90%		0.0167	6.02%
321	Acid Soluble Zinc (%)	3	1	0.0020		0.0663		0.0443	0.0554	66.90%		0.0000	6.02%

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Analytes: 26

Sample # 170311

Lab Values

Labs Reporting: 73

Grade 28-0-0 Liquid SR

Issue Date : 04/30/2017

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				
001	Ammoniacal Nitrogen (%)	0444	0.5350	0.0100	3.268	4.159	0.0716	3	-0.66	001.10	0
001	Ammoniacal Nitrogen (%)	0389	1.215	0.0900	3.268	4.159	0.0716	3	-0.49	001.10	0
001	Ammoniacal Nitrogen (%)	0524	8.055	0.1148	3.268	4.159	0.0716	3	1.15	001.99	0
005	Urea Nitrogen (%)	0230	5.545	0.0300	8.018	1.704	0.0875	8	-1.33	005.00	0
005	Urea Nitrogen (%)	0389	7.430	0.1000	8.018	1.704	0.0875	8	-0.32	005.00	0
005	Urea Nitrogen (%)	0356	7.550	0.0600	8.018	1.704	0.0875	8	-0.25	005.99	0
005	Urea Nitrogen (%)	0444	7.560	0.0000	8.018	1.704	0.0875	8	-0.25	005.00	0
005	Urea Nitrogen (%)	0420	7.925	0.0500	8.018	1.704	0.0875	8	-0.05	005.99	0
005	Urea Nitrogen (%)	0498	8.000	0.2000	8.018	1.704	0.0875	8	-0.01	005.00	0
005	Urea Nitrogen (%)	0451	9.560	0.1800	8.018	1.704	0.0875	8	0.83	005.99	0
005	Urea Nitrogen (%)	0309	17.04	0.0800	8.018	1.704	0.0875	8	4.84	005.99	0
005	Urea Nitrogen (%)	0394	13.09	20.56	8.018	1.704	0.0875	8	2.72	005.99	1
007	Urea (%)	0220	6.335	0.6500	8.789	2.550	0.2535	6	-0.86	007.99	0
007	Urea (%)	0368	7.644	0.3912	8.789	2.550	0.2535	6	-0.40	007.00	0
007	Urea (%)	0519	7.760	0.0200	8.789	2.550	0.2535	6	-0.36	007.99	0
007	Urea (%)	0486	8.205	0.3100	8.789	2.550	0.2535	6	-0.20	007.00	0
007	Urea (%)	0231	10.18	0.1100	8.789	2.550	0.2535	6	0.48	007.00	0
007	Urea (%)	0420	34.03	0.0400	8.789	2.550	0.2535	6	8.82	007.99	0
010	Total Nitrogen (28%)	0309	27.18*	0.1200	28.31	0.3561	0.1513	76	-3.16	010.11	0
010	Total Nitrogen (28%)	0522	27.51	0.4300	28.31	0.3561	0.1513	76	-2.25	010.11	0
010	Total Nitrogen (28%)	0481	27.51	0.0500	28.31	0.3561	0.1513	76	-2.25	010.12	0
010	Total Nitrogen (28%)	0444	27.64	0.0500	28.31	0.3561	0.1513	76	-1.88	010.60	0
010	Total Nitrogen (28%)	0137	27.77	0.1370	28.31	0.3561	0.1513	76	-1.50	010.60	0
010	Total Nitrogen (28%)	0394	27.80	0.2000	28.31	0.3561	0.1513	76	-1.42	010.99	0
010	Total Nitrogen (28%)	0526	27.80	0.0000	28.31	0.3561	0.1513	76	-1.42	010.99	0
010	Total Nitrogen (28%)	0185	27.82	0.4000	28.31	0.3561	0.1513	76	-1.36	010.12	0
010	Total Nitrogen (28%)	0493	27.85	0.1000	28.31	0.3561	0.1513	76	-1.28	010.99	0
010	Total Nitrogen (28%)	0519	27.88	0.0600	28.31	0.3561	0.1513	76	-1.20	010.99	0
010	Total Nitrogen (28%)	0420	27.98	0.0500	28.31	0.3561	0.1513	76	-0.93	010.60	0
010	Total Nitrogen (28%)	0397	27.99	0.1200	28.31	0.3561	0.1513	76	-0.89	010.12	0
010	Total Nitrogen (28%)	0421	28.00	0.2700	28.31	0.3561	0.1513	76	-0.87	010.60	0
010	Total Nitrogen (28%)	0177	28.01	0.2000	28.31	0.3561	0.1513	76	-0.83	010.60	0
010	Total Nitrogen (28%)	0234	28.02	0.0500	28.31	0.3561	0.1513	76	-0.82	010.60	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				
010	Total Nitrogen (28%)	0292	28.04	0.0100	28.31	0.3561	0.1513	76	-0.76	010.60	0
010	Total Nitrogen (28%)	0354	28.04	0.1450	28.31	0.3561	0.1513	76	-0.74	010.60	0
010	Total Nitrogen (28%)	0513	28.07	0.1900	28.31	0.3561	0.1513	76	-0.68	010.99	0
010	Total Nitrogen (28%)	0481	28.08	0.1300	28.31	0.3561	0.1513	76	-0.65	010.60	0
010	Total Nitrogen (28%)	0510	28.10	0.2715	28.31	0.3561	0.1513	76	-0.59	010.11	0
010	Total Nitrogen (28%)	0389	28.10	0.4000	28.31	0.3561	0.1513	76	-0.58	010.60	0
010	Total Nitrogen (28%)	0420	28.13	0.0500	28.31	0.3561	0.1513	76	-0.51	010.99	0
010	Total Nitrogen (28%)	0131	28.13	0.0740	28.31	0.3561	0.1513	76	-0.50	010.60	0
010	Total Nitrogen (28%)	0483	28.13	0.0600	28.31	0.3561	0.1513	76	-0.49	010.60	0
010	Total Nitrogen (28%)	0043	28.15	0.0100	28.31	0.3561	0.1513	76	-0.45	010.60	0
010	Total Nitrogen (28%)	0029	28.16	0.1100	28.31	0.3561	0.1513	76	-0.42	010.60	0
010	Total Nitrogen (28%)	0231	28.16	0.0100	28.31	0.3561	0.1513	76	-0.42	010.60	0
010	Total Nitrogen (28%)	0114	28.16	0.5790	28.31	0.3561	0.1513	76	-0.41	010.11	0
010	Total Nitrogen (28%)	0377	28.17	0.3400	28.31	0.3561	0.1513	76	-0.38	010.60	0
010	Total Nitrogen (28%)	0220	28.19	0.0100	28.31	0.3561	0.1513	76	-0.34	010.99	0
010	Total Nitrogen (28%)	0041	28.20	0.0900	28.31	0.3561	0.1513	76	-0.31	010.60	0
010	Total Nitrogen (28%)	0157	28.20	0.0000	28.31	0.3561	0.1513	76	-0.30	010.60	0
010	Total Nitrogen (28%)	0482	28.20	0.0000	28.31	0.3561	0.1513	76	-0.30	010.60	0
010	Total Nitrogen (28%)	0037	28.21	0.0200	28.31	0.3561	0.1513	76	-0.27	010.60	0
010	Total Nitrogen (28%)	0073	28.24	0.1000	28.31	0.3561	0.1513	76	-0.19	010.60	0
010	Total Nitrogen (28%)	0451	28.25	0.1400	28.31	0.3561	0.1513	76	-0.16	010.60	0
010	Total Nitrogen (28%)	0035	28.31	0.1900	28.31	0.3561	0.1513	76	0.00	010.60	0
010	Total Nitrogen (28%)	0086	28.32	0.0380	28.31	0.3561	0.1513	76	0.03	010.60	0
010	Total Nitrogen (28%)	0233	28.33	0.0600	28.31	0.3561	0.1513	76	0.07	010.60	0
010	Total Nitrogen (28%)	0452	28.34	0.2000	28.31	0.3561	0.1513	76	0.10	010.60	0
010	Total Nitrogen (28%)	0498	28.35	0.1000	28.31	0.3561	0.1513	76	0.12	010.12	0
010	Total Nitrogen (28%)	0472	28.35	0.1600	28.31	0.3561	0.1513	76	0.12	010.60	0
010	Total Nitrogen (28%)	0023	28.36	0.3860	28.31	0.3561	0.1513	76	0.14	010.60	0
010	Total Nitrogen (28%)	0508	28.36	0.0200	28.31	0.3561	0.1513	76	0.15	010.99	0
010	Total Nitrogen (28%)	0485	28.36	0.2690	28.31	0.3561	0.1513	76	0.16	010.60	0
010	Total Nitrogen (28%)	0501	28.39	0.0310	28.31	0.3561	0.1513	76	0.24	010.60	0
010	Total Nitrogen (28%)	0105	28.42	0.0900	28.31	0.3561	0.1513	76	0.31	010.11	0
010	Total Nitrogen (28%)	0423	28.43	0.1500	28.31	0.3561	0.1513	76	0.33	010.60	0
010	Total Nitrogen (28%)	0106	28.46	0.1800	28.31	0.3561	0.1513	76	0.43	010.60	0
010	Total Nitrogen (28%)	0136	28.46	0.0200	28.31	0.3561	0.1513	76	0.43	010.60	0
010	Total Nitrogen (28%)	0494	28.46	0.1200	28.31	0.3561	0.1513	76	0.43	010.60	0
010	Total Nitrogen (28%)	0042	28.49	0.0100	28.31	0.3561	0.1513	76	0.50	010.60	0
010	Total Nitrogen (28%)	0416	28.49	0.0800	28.31	0.3561	0.1513	76	0.52	010.12	0
010	Total Nitrogen (28%)	0040	28.50	0.2000	28.31	0.3561	0.1513	76	0.55	010.60	0
010	Total Nitrogen (28%)	0390	28.50	0.2000	28.31	0.3561	0.1513	76	0.55	010.60	0
010	Total Nitrogen (28%)	0025	28.51	0.1500	28.31	0.3561	0.1513	76	0.56	010.60	0
010	Total Nitrogen (28%)	0356	28.51	0.2200	28.31	0.3561	0.1513	76	0.57	010.60	0
010	Total Nitrogen (28%)	0049	28.53	0.1100	28.31	0.3561	0.1513	76	0.62	010.60	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				
010	Total Nitrogen (28%)	0055	28.53	0.3700	28.31	0.3561	0.1513	76	0.62	010.60	0
010	Total Nitrogen (28%)	0034	28.54	0.1300	28.31	0.3561	0.1513	76	0.64	010.60	0
010	Total Nitrogen (28%)	0027	28.55	0.3000	28.31	0.3561	0.1513	76	0.69	010.60	0
010	Total Nitrogen (28%)	0524	28.58	0.0864	28.31	0.3561	0.1513	76	0.76	010.99	0
010	Total Nitrogen (28%)	0324	28.60	0.4000	28.31	0.3561	0.1513	76	0.83	010.60	0
010	Total Nitrogen (28%)	0368	28.67	0.4270	28.31	0.3561	0.1513	76	1.03	010.60	0
010	Total Nitrogen (28%)	0291	28.68	0.0200	28.31	0.3561	0.1513	76	1.05	010.60	0
010	Total Nitrogen (28%)	0325	28.70	0.4000	28.31	0.3561	0.1513	76	1.11	010.60	0
010	Total Nitrogen (28%)	0007	28.75	0.1000	28.31	0.3561	0.1513	76	1.25	010.60	0
010	Total Nitrogen (28%)	0105	28.76	0.0600	28.31	0.3561	0.1513	76	1.28	010.60	0
010	Total Nitrogen (28%)	0230	28.80	0.2000	28.31	0.3561	0.1513	76	1.39	010.60	0
010	Total Nitrogen (28%)	0523	28.80	0.0000	28.31	0.3561	0.1513	76	1.39	010.60	0
010	Total Nitrogen (28%)	0521	28.88	0.0000	28.31	0.3561	0.1513	76	1.60	010.60	0
010	Total Nitrogen (28%)	0527	28.88	0.3050	28.31	0.3561	0.1513	76	1.61	010.60	0
010	Total Nitrogen (28%)	0117	28.90	0.0000	28.31	0.3561	0.1513	76	1.67	010.60	0
010	Total Nitrogen (28%)	0486	28.90	0.1000	28.31	0.3561	0.1513	76	1.67	010.60	0
010	Total Nitrogen (28%)	0095	28.92	0.4300	28.31	0.3561	0.1513	76	1.71	010.60	0
010	Total Nitrogen (28%)	0360	29.34	0.2100	28.31	0.3561	0.1513	76	2.89	010.60	0
010	Total Nitrogen (28%)	0522	28.29	0.6700	28.31	0.3561	0.1513	76	-0.06	010.99	1
020	Total Phosphorus as P2O5 (%)	0521	0.0002	0.0000	0.0270	0.0459	0.0000	3	-0.58	020.50	0
020	Total Phosphorus as P2O5 (%)	0524	0.0008	0.0001	0.0270	0.0459	0.0000	3	-0.57	020.50	0
020	Total Phosphorus as P2O5 (%)	0292	0.0800	0.0000	0.0270	0.0459	0.0000	3	1.15	020.20	0
041	Direct Available Phosphorus as P2O5 (%)	0325	0.1000	0.0000				1		041.50	0
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0000	0.0000				1		041.60	4
050	Soluble Potassium as K2O (%)	0524	0.0708	0.0108	0.5057	0.2793	0.0162	5	-1.36	050.99	0
050	Soluble Potassium as K2O (%)	0389	0.4750	0.0100	0.5057	0.2793	0.0162	5	-0.10	050.99	0
050	Soluble Potassium as K2O (%)	0482	0.5600	0.0600	0.5057	0.2793	0.0162	5	0.17	050.99	0
050	Soluble Potassium as K2O (%)	0292	0.5800	0.0000	0.5057	0.2793	0.0162	5	0.23	050.50	0
050	Soluble Potassium as K2O (%)	0521	0.8426	0.0000	0.5057	0.2793	0.0162	5	1.05	050.99	0
050	Soluble Potassium as K2O (%)	0325	0.2000	0.2000	0.5057	0.2793	0.0162	5	-0.96	050.99	1
050	Soluble Potassium as K2O (%)	0354	0.0000	0.0000	0.5057	0.2793	0.0162	5		050.52	4
101	Acid Soluble Calcium (%)	0354	0.0420	0.0180				1		101.30	0
101	Acid Soluble Calcium (%)	0521	0.0000	0.0000				1		101.32	4
121	Acid Soluble Magnesium (%)	0521	0.0001	0.0000				2		121.32	0
121	Acid Soluble Magnesium (%)	0354	0.0125	0.0050				2		121.30	0
148	Total Sulfur (%)	0354	0.0085	0.0070				1		148.99	0
149	Sulfur - HNO3 soluble (%)	0521	0.0001	0.0000				2		149.04	0
149	Sulfur - HNO3 soluble (%)	0524	0.0013	0.0004				2		149.04	0
151	Acid Soluble Arsenic (ppm)	0519	0.0500	0.0200				1		151.99	0
165	Acid Soluble Boron (%)	0524	0.0008	0.0001				2		165.99	0
165	Acid Soluble Boron (%)	0354	0.0060	0.0040				2		165.30	0
165	Acid Soluble Boron (%)	0521	0.0000	0.0000				2		165.30	4
181	Acid Soluble Cadmium (ppm)	0519	0.0100	0.0000	0.0263	0.0249	0.0052	3	-0.65	181.99	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				
181	Acid Soluble Cadmium (ppm)	0524	0.0140	0.0055	0.0263	0.0249	0.0052	3	-0.50	181.30	0
181	Acid Soluble Cadmium (ppm)	0389	0.0550	0.0100	0.0263	0.0249	0.0052	3	1.15	181.30	0
191	Acid Soluble Chromium (ppm)	0389	0.0800	0.0200				2		191.30	0
191	Acid Soluble Chromium (ppm)	0519	1.215	0.0700				2		191.99	0
202	Acid Soluble Cobalt (ppm)	0519	0.0100	0.0000				1		202.99	0
221	Acid Soluble Copper (%)	0521	0.0001	0.0000				2		221.32	0
221	Acid Soluble Copper (%)	0354	0.0020	0.0000				2		221.30	0
241	Acid Soluble Iron (%)	0524	0.0006	0.0009				2		241.99	0
241	Acid Soluble Iron (%)	0354	0.0100	0.0040				2		241.30	0
241	Acid Soluble Iron (%)	0521	0.0000	0.0000				2		241.32	4
251	Acid Soluble Lead (ppm)	0519	0.1150	0.0300				2		251.99	0
251	Acid Soluble Lead (ppm)	0389	0.1450	0.0300				2		251.30	0
261	Acid Soluble Manganese (%)	0521	0.0007	0.0000				1		261.34	0
261	Acid Soluble Manganese (%)	0354	0.0000	0.0000				1		261.30	4
281	Acid Soluble Mercury (ppm)	0519	0.0450	0.0100				1		281.99	0
289	Acid Soluble Molybdenum (ppm)	0521	0.1418	0.0000				2		289.30	0
289	Acid Soluble Molybdenum (ppm)	0524	0.1551	0.0328				2		289.30	0
291	Acid Soluble Nickel (ppm)	0521	0.0370	0.0000				2		291.30	0
291	Acid Soluble Nickel (ppm)	0519	0.0800	0.0200				2		291.99	0
301	Acid Soluble Selenium (ppm)	0519	0.0100	0.0000				2		301.99	0
301	Acid Soluble Selenium (ppm)	0524	1.623	0.0326				2		301.30	0
311	Sodium (%)	0482	0.0350	0.0100	0.0663	0.0443	0.0167	3	-0.71	311.99	0
311	Sodium (%)	0521	0.0468	0.0000	0.0663	0.0443	0.0167	3	-0.44	311.32	0
311	Sodium (%)	0354	0.1170	0.0400	0.0663	0.0443	0.0167	3	1.14	311.99	0
321	Acid Soluble Zinc (%)	0354	0.0020	0.0000				1		321.30	0
321	Acid Soluble Zinc (%)	0292	0.0000	0.0000				1		321.30	4
321	Acid Soluble Zinc (%)	0521	0.0000	0.0000				1		321.32	4

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 asterix 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.