

Analyte PT For All Labs
 Sample # 230213
 UAN Solution 32-0-0

Magruder Fertilizer Proficiency Testing Program
 Regular PT Scheme Sample Doubles with N Scheme
 Statistical Summary

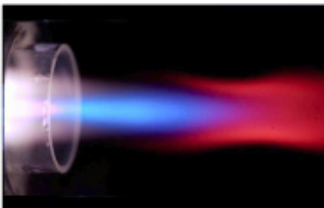
Analytes: 27
 # Labs Reporting: 59
 Issue Date : 03/31/2023

Analyte Code	Analyte Sample # 230213	# 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	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal N (%)	19	19	7.937	0.8679	7.905		0.4660	0.1336	5.89%		0.1259	2.93%
002	Nitrate N (%)	14	13	7.667	1.709	7.375		0.4239	0.1469	5.75%		0.1351	2.96%
005	Urea N (%)	12	11	17.16	0.8443	17.06		0.7992	0.3012	4.68%		0.1370	2.42%
006	Biuret N (%)	2	2	0.5800	0.5091								
007	Urea (%)	3	3	14.21	3.650	14.21		3.650	2.634	25.69%		0.2000	2.65%
008	Biuret (%)	2	2	0.5308	0.5081								
009	Ammoniacal Plus Nitrate N (%)	5	5	16.26	0.6913	16.26		0.6913	0.3864	4.25%		0.2940	2.48%
010	Total N (32%)	59	56	31.72	2.067	32.10	0.8800	0.4219	0.0705	1.31%	1.12	0.2432	1.76%
020	Total P2O5 (%)	3	2	0.0041	0.0029	0.0056		0.0016	0.0014	28.28%		0.0009	8.72%
041	Direct Available P2O5 (%)	1		0.0046									
050	Soluble K2O (%)	3	3	0.0057	0.0032	0.0057	0.4100	0.0032	0.0023	55.05%	0.02	0.0033	8.70%
101	Acid Soluble Ca (%)	2	1	0.0057	0.0066								
121	Acid Soluble Mg (%)	4	3	0.0095	0.0057	0.0123	0.2006	0.0010	0.0008	8.44%	0.01	0.0010	7.75%
148	Total S (%)	2	2	0.0079	0.0044								
149	S - HNO3 soluble (%)	2	1	0.0025	0.0021								
165	Acid Soluble B (%)	1		0.0017									
181	Acid Soluble Cd (ppm)	1		0.0052									
191	Acid Soluble Cr (ppm)	1		0.2669									
202	Acid Soluble Co (ppm)	1		0.0755									
221	Acid Soluble Cu (%)	1		0.0001									
241	Acid Soluble Fe (%)	2	2	0.0005	0.0003								
251	Acid Soluble Pb (ppm)	1		0.0610									
281	Acid Soluble Hg (ppm)	1		0.0005									
289	Acid Soluble Mo (ppm)	1		1.570									
291	Acid Soluble Ni (ppm)	1		0.0764									
311	Sodium (%)	1		0.0076									
321	Acid Soluble Zn (%)	2	2	0.0001	0.0000								

The Analyte IA Ratio = 2.33 * Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting.

Analyte Code	Analyte Sample # 230213	# 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	Analyte IA Ratio	Average Range (R-bar)	Horwitz %RSD
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The Horwitz %RSD is calculated using the Thompson Modification, Analyst, 2000, 125, 385-386.



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 27

Sample # 230213

Regular PT Scheme Sample Doubles with N Scheme

Labs Reporting: 59

UAN Solution 32-0-0

Lab Values

Issue Date : 03/31/2023

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Analyte Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001	Ammoniacal N (%)	0368	5.495	0.1970	7.905	0.4660	0.1259	19	-5.17	001.99	0
001	Ammoniacal N (%)	0371	7.550	0.1000	7.905	0.4660	0.1259	19	-0.76	001.99	0
001	Ammoniacal N (%)	0547	7.615	0.1300	7.905	0.4660	0.1259	19	-0.62	001.10	0
001	Ammoniacal N (%)	0580	7.625	0.0100	7.905	0.4660	0.1259	19	-0.60	001.10	0
001	Ammoniacal N (%)	0027	7.665	0.0100	7.905	0.4660	0.1259	19	-0.52	001.99	0
001	Ammoniacal N (%)	0231	7.675	0.2900	7.905	0.4660	0.1259	19	-0.49	001.10	0
001	Ammoniacal N (%)	0136	7.710	0.0400	7.905	0.4660	0.1259	19	-0.42	001.10	0
001	Ammoniacal N (%)	0481	7.715	0.0100	7.905	0.4660	0.1259	19	-0.41	001.10	0
001	Ammoniacal N (%)	0524	7.745	0.0900	7.905	0.4660	0.1259	19	-0.34	001.99	0
001	Ammoniacal N (%)	0444	7.750	0.1000	7.905	0.4660	0.1259	19	-0.33	001.10	0
001	Ammoniacal N (%)	0389	7.755	0.0500	7.905	0.4660	0.1259	19	-0.32	001.10	0
001	Ammoniacal N (%)	0593	7.780	0.2600	7.905	0.4660	0.1259	19	-0.27	001.99	0
001	Ammoniacal N (%)	0553	7.875	0.3100	7.905	0.4660	0.1259	19	-0.06	001.99	0
001	Ammoniacal N (%)	0609	8.030	0.1200	7.905	0.4660	0.1259	19	0.27	001.10	0
001	Ammoniacal N (%)	0587	8.100	0.1000	7.905	0.4660	0.1259	19	0.42	001.10	0
001	Ammoniacal N (%)	0586	8.590	0.1800	7.905	0.4660	0.1259	19	1.47	001.99	0
001	Ammoniacal N (%)	0255	9.100	0.1400	7.905	0.4660	0.1259	19	2.56	001.99	0
001	Ammoniacal N (%)	0619	9.350	0.0000	7.905	0.4660	0.1259	19	3.10	001.10	0
001	Ammoniacal N (%)	0619	9.685	0.1300	7.905	0.4660	0.1259	19	3.82	001.99	0
002	Nitrate N (%)	0368	5.297	0.0660	7.375	0.4239	0.1351	13	-4.90	002.99	0
002	Nitrate N (%)	0553	6.835	0.1300	7.375	0.4239	0.1351	13	-1.28	002.99	0
002	Nitrate N (%)	0029	6.945	0.0500	7.375	0.4239	0.1351	13	-1.02	002.99	0
002	Nitrate N (%)	0220	7.260	0.0400	7.375	0.4239	0.1351	13	-0.27	002.99	0
002	Nitrate N (%)	0231	7.280	0.0200	7.375	0.4239	0.1351	13	-0.23	002.99	0
002	Nitrate N (%)	0136	7.345	0.4900	7.375	0.4239	0.1351	13	-0.07	002.99	0
002	Nitrate N (%)	0547	7.435	0.0300	7.375	0.4239	0.1351	13	0.14	002.99	0
002	Nitrate N (%)	0481	7.445	0.1300	7.375	0.4239	0.1351	13	0.16	002.99	0
002	Nitrate N (%)	0027	7.530	0.0400	7.375	0.4239	0.1351	13	0.36	002.99	0
002	Nitrate N (%)	0371	7.550	0.1000	7.375	0.4239	0.1351	13	0.41	002.99	0
002	Nitrate N (%)	0444	7.650	0.1000	7.375	0.4239	0.1351	13	0.65	002.99	0
002	Nitrate N (%)	0609	7.855	0.2100	7.375	0.4239	0.1351	13	1.13	002.99	0
002	Nitrate N (%)	0587	13.20	0.3500	7.375	0.4239	0.1351	13	13.73	002.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Analyte Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
002	Nitrate N (%)	0580	7.720	1.380	7.375	0.4239	0.1351	13	0.81	002.99	1
005	Urea N (%)	0619	15.59	0.2000	17.06	0.7992	0.1370	11	-1.84	005.99	0
005	Urea N (%)	0580	16.42	0.0000	17.06	0.7992	0.1370	11	-0.80	005.99	0
005	Urea N (%)	0389	16.49	0.0500	17.06	0.7992	0.1370	11	-0.72	005.00	0
005	Urea N (%)	0547	16.62	0.3900	17.06	0.7992	0.1370	11	-0.55	005.99	0
005	Urea N (%)	0136	16.78	0.0300	17.06	0.7992	0.1370	11	-0.35	005.00	0
005	Urea N (%)	0451	16.95	0.0010	17.06	0.7992	0.1370	11	-0.14	005.20	0
005	Urea N (%)	0029	17.45	0.0500	17.06	0.7992	0.1370	11	0.48	005.99	0
005	Urea N (%)	0027	17.45	0.0600	17.06	0.7992	0.1370	11	0.49	005.99	0
005	Urea N (%)	0368	17.69	0.2093	17.06	0.7992	0.1370	11	0.79	005.00	0
005	Urea N (%)	0371	17.75	0.1000	17.06	0.7992	0.1370	11	0.87	005.99	0
005	Urea N (%)	0231	18.21	0.2800	17.06	0.7992	0.1370	11	1.44	005.00	0
005	Urea N (%)	0524	18.57	1.080	17.06	0.7992	0.1370	11	1.89	005.99	1
006	Biuret N (%)	0220	0.2200	0.0000				2		006.99	0
006	Biuret N (%)	0481	0.9400	0.0000				2		006.10	0
007	Urea (%)	0587	9.995	0.1300	14.21	3.650	0.2000	3	-1.15	007.99	0
007	Urea (%)	0444	16.30	0.4000	14.21	3.650	0.2000	3	0.57	007.99	0
007	Urea (%)	0220	16.34	0.0700	14.21	3.650	0.2000	3	0.58	007.99	0
008	Biuret (%)	0444	0.1715	0.0030				2		008.99	0
008	Biuret (%)	0450	0.8900	0.0200				2		008.10	0
009	Ammoniacal Plus Nitrate N (%)	0444	15.40	0.2000	16.26	0.6913	0.2940	5	-1.25	009.10	0
009	Ammoniacal Plus Nitrate N (%)	0609	15.89	0.0900	16.26	0.6913	0.2940	5	-0.55	009.10	0
009	Ammoniacal Plus Nitrate N (%)	0619	16.39	0.3500	16.26	0.6913	0.2940	5	0.18	009.10	0
009	Ammoniacal Plus Nitrate N (%)	0619	16.39	0.3500	16.26	0.6913	0.2940	5	0.18	009.99	0
009	Ammoniacal Plus Nitrate N (%)	0587	17.26	0.4800	16.26	0.6913	0.2940	5	1.44	009.10	0
010	Total N (32%)	0494	30.86†	0.5300	32.10	0.4219	0.2432	56	-2.95	010.60	0
010	Total N (32%)	0524	31.06†	0.3800	32.10	0.4219	0.2432	56	-2.47	010.99	0
010	Total N (32%)	0587	31.25	0.1100	32.10	0.4219	0.2432	56	-2.03	010.99	0
010	Total N (32%)	0035	31.25	0.1000	32.10	0.4219	0.2432	56	-2.02	010.60	0
010	Total N (32%)	0234	31.34	0.0100	32.10	0.4219	0.2432	56	-1.82	010.60	0
010	Total N (32%)	0055	31.53	0.2500	32.10	0.4219	0.2432	56	-1.37	010.60	0
010	Total N (32%)	0481	31.56	0.7000	32.10	0.4219	0.2432	56	-1.28	010.12	0
010	Total N (32%)	0402	31.65	0.0290	32.10	0.4219	0.2432	56	-1.07	010.60	0
010	Total N (32%)	0593	31.65	1.000	32.10	0.4219	0.2432	56	-1.07	010.60	0
010	Total N (32%)	0444	31.70	0.2000	32.10	0.4219	0.2432	56	-0.95	010.99	0
010	Total N (32%)	0580	31.77	0.0000	32.10	0.4219	0.2432	56	-0.78	010.12	0
010	Total N (32%)	0423	31.79	0.2000	32.10	0.4219	0.2432	56	-0.74	010.60	0
010	Total N (32%)	0102	31.83	0.0700	32.10	0.4219	0.2432	56	-0.65	010.60	0
010	Total N (32%)	0025	31.83	0.7600	32.10	0.4219	0.2432	56	-0.64	010.60	0
010	Total N (32%)	0472	31.89	0.1800	32.10	0.4219	0.2432	56	-0.50	010.60	0
010	Total N (32%)	0255	31.90	0.6200	32.10	0.4219	0.2432	56	-0.47	010.60	0
010	Total N (32%)	0220	31.97	0.0800	32.10	0.4219	0.2432	56	-0.31	010.60	0
010	Total N (32%)	0451	31.97	0.1400	32.10	0.4219	0.2432	56	-0.31	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Analyte Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total N (32%)	0619	31.98	0.1500	32.10	0.4219	0.2432	56	-0.30	010.12	0
010	Total N (32%)	0619	31.98	0.1500	32.10	0.4219	0.2432	56	-0.30	010.60	0
010	Total N (32%)	0619	31.98	0.1500	32.10	0.4219	0.2432	56	-0.30	010.99	0
010	Total N (32%)	0422	31.98	0.0200	32.10	0.4219	0.2432	56	-0.29	010.60	0
010	Total N (32%)	0027	31.99	0.2200	32.10	0.4219	0.2432	56	-0.26	010.60	0
010	Total N (32%)	0086	32.03	0.0080	32.10	0.4219	0.2432	56	-0.16	010.60	0
010	Total N (32%)	0291	32.04	0.0100	32.10	0.4219	0.2432	56	-0.16	010.60	0
010	Total N (32%)	0231	32.05	0.0200	32.10	0.4219	0.2432	56	-0.12	010.60	0
010	Total N (32%)	0588	32.05	0.3000	32.10	0.4219	0.2432	56	-0.12	010.60	0
010	Total N (32%)	0534	32.05	0.3000	32.10	0.4219	0.2432	56	-0.12	010.99	0
010	Total N (32%)	0527	32.06	0.4080	32.10	0.4219	0.2432	56	-0.09	010.60	0
010	Total N (32%)	0157	32.10	0.2000	32.10	0.4219	0.2432	56	0.00	010.60	0
010	Total N (32%)	0450	32.10	0.2000	32.10	0.4219	0.2432	56	0.00	010.60	0
010	Total N (32%)	0136	32.17	0.0100	32.10	0.4219	0.2432	56	0.15	010.60	0
010	Total N (32%)	0452	32.18	0.1500	32.10	0.4219	0.2432	56	0.18	010.60	0
010	Total N (32%)	0485	32.18	0.5000	32.10	0.4219	0.2432	56	0.19	010.60	0
010	Total N (32%)	0324	32.20	0.2000	32.10	0.4219	0.2432	56	0.23	010.60	0
010	Total N (32%)	0040	32.25	0.1000	32.10	0.4219	0.2432	56	0.35	010.60	0
010	Total N (32%)	0586	32.29	0.0100	32.10	0.4219	0.2432	56	0.44	010.60	0
010	Total N (32%)	0043	32.31	0.0100	32.10	0.4219	0.2432	56	0.48	010.60	0
010	Total N (32%)	0523	32.31	0.0050	32.10	0.4219	0.2432	56	0.48	010.60	0
010	Total N (32%)	0029	32.31	0.7400	32.10	0.4219	0.2432	56	0.50	010.60	0
010	Total N (32%)	0360	32.32	0.0200	32.10	0.4219	0.2432	56	0.52	010.60	0
010	Total N (32%)	0368	32.34	0.1070	32.10	0.4219	0.2432	56	0.57	010.60	0
010	Total N (32%)	0023	32.37	0.7550	32.10	0.4219	0.2432	56	0.63	010.60	0
010	Total N (32%)	0177	32.37	0.2640	32.10	0.4219	0.2432	56	0.64	010.60	0
010	Total N (32%)	0543	32.38	0.7900	32.10	0.4219	0.2432	56	0.65	010.60	0
010	Total N (32%)	0481	32.39	0.2500	32.10	0.4219	0.2432	56	0.67	010.60	0
010	Total N (32%)	0624	32.43	0.0480	32.10	0.4219	0.2432	56	0.78	010.60	0
010	Total N (32%)	0114	32.48	0.5300	32.10	0.4219	0.2432	56	0.89	010.60	0
010	Total N (32%)	0095	32.53	0.2400	32.10	0.4219	0.2432	56	1.02	010.60	0
010	Total N (32%)	0389	32.79	0.0200	32.10	0.4219	0.2432	56	1.63	010.60	0
010	Total N (32%)	0559	32.82	0.0100	32.10	0.4219	0.2432	56	1.69	010.99	0
010	Total N (32%)	0049	32.84	0.0700	32.10	0.4219	0.2432	56	1.74	010.60	0
010	Total N (32%)	0371	32.85	0.1000	32.10	0.4219	0.2432	56	1.78	010.99	0
010	Total N (32%)	0518	32.85	0.7000	32.10	0.4219	0.2432	56	1.78	010.99	0
010	Total N (32%)	0562	32.87	0.0100	32.10	0.4219	0.2432	56	1.81	010.99	0
010	Total N (32%)	0260	33.80‡	0.0000	32.10	0.4219	0.2432	56	4.03	010.60	0
010	Total N (32%)	0117	27.59†	2.098	32.10	0.4219	0.2432	56	-10.70	010.12	1
010	Total N (32%)	0073	28.40†	3.600	32.10	0.4219	0.2432	56	-8.77	010.60	1
010	Total N (32%)	0510	17.65†	0.0375	32.10	0.4219	0.2432	56	-34.25	010.11	2
020	Total P2O5 (%)	0524	0.0045	0.0010				2		020.50	0
020	Total P2O5 (%)	0422	0.0068	0.0007				2		020.50	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Analyte Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
020	Total P2O5 (%)	0588	< 0.001					2		020.50	5
041	Direct Available P2O5 (%)	0624	0.0046	0.0001				1		041.50	0
050	Soluble K2O (%)	0422	0.0027	0.0040	0.0057	0.0032	0.0033	3	-0.96	050.50	0
050	Soluble K2O (%)	0624	0.0055	0.0040	0.0057	0.0032	0.0033	3	-0.07	050.99	0
050	Soluble K2O (%)	0524	0.0090	0.0020	0.0057	0.0032	0.0033	3	1.03	050.99	0
101	Acid Soluble Ca (%)	0624	0.0104	0.0012				1		101.33	0
101	Acid Soluble Ca (%)	0588	< 0.001					1		101.33	5
121	Acid Soluble Mg (%)	0553	0.0115	0.0000	0.0123	0.0010	0.0010	3	-0.80	121.00	0
121	Acid Soluble Mg (%)	0524	0.0120	0.0000	0.0123	0.0010	0.0010	3	-0.32	121.99	0
121	Acid Soluble Mg (%)	0624	0.0135	0.0010	0.0123	0.0010	0.0010	3	1.12	121.33	0
121	Acid Soluble Mg (%)	0588	< 0.001		0.0123	0.0010	0.0010	3		121.33	5
148	Total S (%)	0422	0.0048	0.0009				2		148.99	0
148	Total S (%)	0624	0.0110	0.0020				2		148.07	0
149	S - HNO3 soluble (%)	0524	0.0040	0.0000				1		149.04	0
149	S - HNO3 soluble (%)	0588	< 0.001					1		149.04	5
165	Acid Soluble B (%)	0624	0.0017	0.0000				1		165.99	0
181	Acid Soluble Cd (ppm)	0524	0.0052	0.0008				1		181.30	0
191	Acid Soluble Cr (ppm)	0524	0.2669	0.0141				1		191.30	0
202	Acid Soluble Co (ppm)	0524	0.0755	0.0159				1		202.30	0
221	Acid Soluble Cu (%)	0624	0.0001	0.0000				1		221.33	0
241	Acid Soluble Fe (%)	0524	0.0003	0.0001				2		241.99	0
241	Acid Soluble Fe (%)	0624	0.0007	0.0001				2		241.33	0
251	Acid Soluble Pb (ppm)	0524	0.0610	0.0008				1		251.30	0
281	Acid Soluble Hg (ppm)	0524	0.0005	0.0001				1		281.99	0
289	Acid Soluble Mo (ppm)	0524	1.570	0.0256				1		289.30	0
291	Acid Soluble Ni (ppm)	0524	0.0764	0.0015				1		291.30	0
311	Sodium (%)	0553	0.0076	0.0019				1		311.00	0
321	Acid Soluble Zn (%)	0624	0.0001	0.0000				2		321.33	0
321	Acid Soluble Zn (%)	0524	0.0001	0.0000				2		321.99	0

Interpreting Z Scores and Flags:

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, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated.

Notes:

Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. Zero range not used in R-bar calculations. LabResults\LabResults\Q19 Your offset values are higher (‡) or lower (†) than the Robust Analyte value ± Investigational Allowance. 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.