



Analyte PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Analytes: 32

Sample # 240911

Regular PT Scheme

Labs Reporting: 66

Urea + Inhibitor

Statistical Summary

Issue Date : 10/31/2024

Analyte Code	Analyte Sample # 240911	# 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 (%)	1		0.5358									
003	Water Insoluble N (%)	2	2	0.9700	1.025								
005	Urea N (%)	15	14	43.45	7.310	45.36		0.7707	0.2575	1.70%		0.0612	1.48%
006	Biuret N (%)	2	2	0.9725	0.1237								
007	Urea (%)	1		45.91									
008	Biuret (%)	6	6	1.274	0.6890	1.033		0.1281	0.0654	12.40%		0.0476	3.98%
010	Total N (46%)	63	62	46.31	0.4992	46.30	0.8800	0.4375	0.0694	0.94%	1.16	0.1899	1.47%
020	Total P2O5 (%)	3	2	0.0148	0.0173	0.0222		0.0165	0.0146	74.46%		0.0027	7.10%
041	Direct Available P2O5 (%)	1		0.1080									
050	Soluble K2O (%)	4	4	0.0634	0.0537	0.0634	0.4100	0.0537	0.0336	84.77%	0.31	0.0168	6.06%
060	Water (Free) (%)	9	8	0.4087	0.2516	0.3663		0.1711	0.0756	46.72%		0.0121	4.65%
101	Acid Soluble Ca (%)	2	1	0.3025	0.2793								
121	Acid Soluble Mg (%)	3	2	0.0055	0.0043	0.0057	0.2003	0.0061	0.0054	106.69%	0.07	0.0000	8.71%
148	Total S (%)	2	1	0.0175	0.0248								
149	S - HNO3 soluble (%)	2	1	0.0336	0.0232								
151	Acid Soluble As (ppm)	2	1	3.100	4.384								
165	Acid Soluble B (%)	1		0.0100									
181	Acid Soluble Cd (ppm)	2	1	0.9276	1.304								
191	Acid Soluble Cr (ppm)	2	1	0.7797	0.5944								
202	Acid Soluble Co (ppm)	1		0.0559									
221	Acid Soluble Cu (%)	1		0.0100									
241	Acid Soluble Fe (%)	2	2	0.0504	0.0702								
251	Acid Soluble Pb (ppm)	2	1	2.530	3.493								
261	Acid Soluble Mn (%)	1		0.0100									
281	Acid Soluble Hg (ppm)	2	1	0.6258	0.8828								
289	Acid Soluble Mo (ppm)	1		0.0223									
291	Acid Soluble Ni (ppm)	2	1	1.324	1.522								
301	Acid Soluble Se (ppm)	2	1	0.8280	1.162								
311	Sodium (%)	2	1	0.0200	0.0212								

Analyte Code	Analyte Sample # 240911	# 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
321	Acid Soluble Zn (%)	2	1	0.0051	0.0070								
461	NBPT (N-(n-Butyl) thiophosphoric triamide (%))	1		0.0175									
471	DDC (Dicyandiamide) (%)	2	2	0.7850	0.0778								

The Analyte IA Ratio = $2.33 * \text{Robust SD} / \text{IA at the Analyte Assigned Value}$. 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. The Horwitz %RSD is calculated using the Thompson Modification, Analyst,2000,125,385-386.



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Analytes: 32

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Regular PT Scheme

Labs Reporting: 66

Urea + Inhibitor

Lab Values

Issue Date : 10/31/2024

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001	Ammoniacal N (%)	0524	0.5358	0.0015				1		001.99	0
003	Water Insoluble N (%)	0220	0.2450	0.0300				2		003.10	0
003	Water Insoluble N (%)	0136	1.695	0.2100				2		003.10	0
005	Urea N (%)	0394	43.81	0.0400	45.36	0.7707	0.0612	14	-2.01	005.10	0
005	Urea N (%)	0029	44.22	0.2000	45.36	0.7707	0.0612	14	-1.47	005.99	0
005	Urea N (%)	0451	44.25	1.500	45.36	0.7707	0.0612	14	-1.43	005.20	0
005	Urea N (%)	0368	45.02	0.0339	45.36	0.7707	0.0612	14	-0.44	005.00	0
005	Urea N (%)	0405	45.40	0.0800	45.36	0.7707	0.0612	14	0.06	005.99	0
005	Urea N (%)	0626	45.49	0.0600	45.36	0.7707	0.0612	14	0.17	005.99	0
005	Urea N (%)	0538	45.50	0.0200	45.36	0.7707	0.0612	14	0.19	005.99	0
005	Urea N (%)	0524	45.51	0.0577	45.36	0.7707	0.0612	14	0.20	005.99	0
005	Urea N (%)	0027	45.68	0.0700	45.36	0.7707	0.0612	14	0.41	005.99	0
005	Urea N (%)	0605	45.69	0.0300	45.36	0.7707	0.0612	14	0.43	005.99	0
005	Urea N (%)	0638	45.81	0.0700	45.36	0.7707	0.0612	14	0.58	005.99	0
005	Urea N (%)	0549	46.00	0.0500	45.36	0.7707	0.0612	14	0.83	005.99	0
005	Urea N (%)	0619	46.09	0.0000	45.36	0.7707	0.0612	14	0.95	005.00	0
005	Urea N (%)	0619	46.14	0.0000	45.36	0.7707	0.0612	14	1.02	005.99	0
005	Urea N (%)	0136	17.15	2.220	45.36	0.7707	0.0612	14	-36.60	005.00	1
006	Biuret N (%)	0626	0.8850	0.0300				2		006.99	0
006	Biuret N (%)	0481	1.060	0.0000				2		006.99	0
007	Urea (%)	0537	45.91	0.1400				1		007.99	0
008	Biuret (%)	0405	0.8800	0.0400	1.033	0.1281	0.0476	6	-1.06	008.10	0
008	Biuret (%)	0513	0.9900	0.0000	1.033	0.1281	0.0476	6	-0.30	008.10	0
008	Biuret (%)	0510	1.006	0.0782	1.033	0.1281	0.0476	6	-0.19	008.10	0
008	Biuret (%)	0517	1.030	0.0600	1.033	0.1281	0.0476	6	-0.02	008.10	0
008	Biuret (%)	0220	1.065	0.0500	1.033	0.1281	0.0476	6	0.23	008.99	0
008	Biuret (%)	0394	2.675	0.0100	1.033	0.1281	0.0476	6	11.42	008.99	0
010	Total N (46%)	0524	44.96†	0.0640	46.30	0.4375	0.1899	62	-3.06	010.99	0
010	Total N (46%)	0055	45.53	0.4600	46.30	0.4375	0.1899	62	-1.77	010.60	0
010	Total N (46%)	0043	45.64	0.1800	46.30	0.4375	0.1899	62	-1.52	010.60	0
010	Total N (46%)	0485	45.65	1.100	46.30	0.4375	0.1899	62	-1.49	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
010	Total N (46%)	0042	45.76	0.5500	46.30	0.4375	0.1899	62	-1.25	010.60	0
010	Total N (46%)	0423	45.76	0.1600	46.30	0.4375	0.1899	62	-1.24	010.60	0
010	Total N (46%)	0531	45.80	0.2000	46.30	0.4375	0.1899	62	-1.15	010.11	0
010	Total N (46%)	0521	45.80	0.0000	46.30	0.4375	0.1899	62	-1.15	010.60	0
010	Total N (46%)	0531	45.80	0.2000	46.30	0.4375	0.1899	62	-1.15	010.99	0
010	Total N (46%)	0600	45.88	0.1500	46.30	0.4375	0.1899	62	-0.98	010.99	0
010	Total N (46%)	0086	45.89	0.4010	46.30	0.4375	0.1899	62	-0.94	010.60	0
010	Total N (46%)	0389	45.92	0.0900	46.30	0.4375	0.1899	62	-0.89	010.60	0
010	Total N (46%)	0481	45.97	0.3600	46.30	0.4375	0.1899	62	-0.76	010.99	0
010	Total N (46%)	0558	45.97	0.0079	46.30	0.4375	0.1899	62	-0.76	010.99	0
010	Total N (46%)	0588	46.00	0.8000	46.30	0.4375	0.1899	62	-0.69	010.60	0
010	Total N (46%)	0538	46.01	0.0500	46.30	0.4375	0.1899	62	-0.68	010.99	0
010	Total N (46%)	0234	46.04	0.0300	46.30	0.4375	0.1899	62	-0.61	010.60	0
010	Total N (46%)	0518	46.10	0.2000	46.30	0.4375	0.1899	62	-0.46	010.99	0
010	Total N (46%)	0472	46.13	0.0100	46.30	0.4375	0.1899	62	-0.41	010.60	0
010	Total N (46%)	0354	46.15	0.1000	46.30	0.4375	0.1899	62	-0.35	010.60	0
010	Total N (46%)	0444	46.15	0.1000	46.30	0.4375	0.1899	62	-0.35	010.99	0
010	Total N (46%)	0136	46.16	0.5500	46.30	0.4375	0.1899	62	-0.34	010.60	0
010	Total N (46%)	0073	46.17	0.1100	46.30	0.4375	0.1899	62	-0.32	010.60	0
010	Total N (46%)	0565	46.18	0.0500	46.30	0.4375	0.1899	62	-0.29	010.99	0
010	Total N (46%)	0177	46.18	0.1400	46.30	0.4375	0.1899	62	-0.28	010.60	0
010	Total N (46%)	0292	46.20	0.0500	46.30	0.4375	0.1899	62	-0.25	010.60	0
010	Total N (46%)	0231	46.21	0.0100	46.30	0.4375	0.1899	62	-0.22	010.60	0
010	Total N (46%)	0513	46.22	0.0900	46.30	0.4375	0.1899	62	-0.20	010.99	0
010	Total N (46%)	0102	46.25	0.0500	46.30	0.4375	0.1899	62	-0.13	010.60	0
010	Total N (46%)	0034	46.25	0.1000	46.30	0.4375	0.1899	62	-0.12	010.60	0
010	Total N (46%)	0291	46.29	0.0100	46.30	0.4375	0.1899	62	-0.04	010.60	0
010	Total N (46%)	0023	46.29	0.1450	46.30	0.4375	0.1899	62	-0.03	010.60	0
010	Total N (46%)	0619	46.29	0.0000	46.30	0.4375	0.1899	62	-0.03	010.12	0
010	Total N (46%)	0619	46.29	0.0000	46.30	0.4375	0.1899	62	-0.03	010.99	0
010	Total N (46%)	0169	46.31	0.0200	46.30	0.4375	0.1899	62	0.02	010.60	0
010	Total N (46%)	0543	46.33	0.1900	46.30	0.4375	0.1899	62	0.05	010.60	0
010	Total N (46%)	0559	46.40	0.0100	46.30	0.4375	0.1899	62	0.21	010.99	0
010	Total N (46%)	0040	46.40	0.0000	46.30	0.4375	0.1899	62	0.22	010.60	0
010	Total N (46%)	0517	46.40	0.2000	46.30	0.4375	0.1899	62	0.22	010.99	0
010	Total N (46%)	0027	46.41	0.4500	46.30	0.4375	0.1899	62	0.23	010.60	0
010	Total N (46%)	0029	46.42	0.4200	46.30	0.4375	0.1899	62	0.27	010.60	0
010	Total N (46%)	0405	46.43	0.0000	46.30	0.4375	0.1899	62	0.29	010.60	0
010	Total N (46%)	0510	46.44	0.2062	46.30	0.4375	0.1899	62	0.31	010.11	0
010	Total N (46%)	0220	46.46	0.0400	46.30	0.4375	0.1899	62	0.36	010.60	0
010	Total N (46%)	0451	46.50	0.2000	46.30	0.4375	0.1899	62	0.45	010.60	0
010	Total N (46%)	0106	46.51	0.1300	46.30	0.4375	0.1899	62	0.46	010.60	0
010	Total N (46%)	0035	46.55	0.3000	46.30	0.4375	0.1899	62	0.56	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
010	Total N (46%)	0324	46.55	0.7000	46.30	0.4375	0.1899	62	0.56	010.60	0
010	Total N (46%)	0494	46.71	0.0100	46.30	0.4375	0.1899	62	0.92	010.60	0
010	Total N (46%)	0527	46.71	0.1070	46.30	0.4375	0.1899	62	0.92	010.60	0
010	Total N (46%)	0131	46.74	0.4030	46.30	0.4375	0.1899	62	0.99	010.60	0
010	Total N (46%)	0368	46.80	0.2250	46.30	0.4375	0.1899	62	1.14	010.60	0
010	Total N (46%)	0481	46.82	0.0400	46.30	0.4375	0.1899	62	1.18	010.60	0
010	Total N (46%)	0377	46.83	0.1200	46.30	0.4375	0.1899	62	1.20	010.60	0
010	Total N (46%)	0260	46.86	0.3500	46.30	0.4375	0.1899	62	1.26	010.60	0
010	Total N (46%)	0230	46.90	0.8000	46.30	0.4375	0.1899	62	1.36	010.60	0
010	Total N (46%)	0072	46.91	0.2800	46.30	0.4375	0.1899	62	1.39	010.60	0
010	Total N (46%)	0307	47.12	0.0200	46.30	0.4375	0.1899	62	1.87	010.60	0
010	Total N (46%)	0422	47.14	0.0200	46.30	0.4375	0.1899	62	1.91	010.60	0
010	Total N (46%)	0255	47.37‡	0.7080	46.30	0.4375	0.1899	62	2.44	010.60	0
010	Total N (46%)	0049	47.51‡	0.1400	46.30	0.4375	0.1899	62	2.76	010.60	0
010	Total N (46%)	0542	47.87‡	0.2300	46.30	0.4375	0.1899	62	3.57	010.60	0
010	Total N (46%)	0095	45.54	1.370	46.30	0.4375	0.1899	62	-1.76	010.60	1
020	Total P2O5 (%)	0588	0.0105	0.0050				2		020.50	0
020	Total P2O5 (%)	0524	0.0339	0.0003				2		020.50	0
020	Total P2O5 (%)	0422	0.0000	0.0000				2		020.50	4
041	Direct Available P2O5 (%)	0354	0.1080	0.0000				1		041.21	0
050	Soluble K2O (%)	0524	0.0041	0.0002	0.0634	0.0537	0.0168	4	-1.10	050.99	0
050	Soluble K2O (%)	0588	0.0550	0.0540	0.0634	0.0537	0.0168	4	-0.16	050.99	0
050	Soluble K2O (%)	0422	0.0599	0.0041	0.0634	0.0537	0.0168	4	-0.07	050.50	0
050	Soluble K2O (%)	0354	0.1345	0.0090	0.0634	0.0537	0.0168	4	1.32	050.52	0
060	Water (Free) (%)	0136	0.2000	0.0000	0.3663	0.1711	0.0121	8	-0.89	060.99	0
060	Water (Free) (%)	0394	0.2600	0.0000	0.3663	0.1711	0.0121	8	-0.57	060.20	0
060	Water (Free) (%)	0220	0.2800	0.0200	0.3663	0.1711	0.0121	8	-0.46	060.00	0
060	Water (Free) (%)	0405	0.2900	0.0000	0.3663	0.1711	0.0121	8	-0.41	060.00	0
060	Water (Free) (%)	0626	0.3000	0.0000	0.3663	0.1711	0.0121	8	-0.35	060.99	0
060	Water (Free) (%)	0517	0.4300	0.0200	0.3663	0.1711	0.0121	8	0.34	060.20	0
060	Water (Free) (%)	0513	0.5475	0.0070	0.3663	0.1711	0.0121	8	0.97	060.20	0
060	Water (Free) (%)	0510	1.021	0.0014	0.3663	0.1711	0.0121	8	3.50	060.99	0
060	Water (Free) (%)	0234	0.3500	0.0600	0.3663	0.1711	0.0121	8	-0.09	060.20	1
101	Acid Soluble Ca (%)	0354	0.1050	0.0100				1		101.30	0
101	Acid Soluble Ca (%)	0423	< 0.5					1		101.32	5
121	Acid Soluble Mg (%)	0524	0.0014	0.0000				2		121.99	0
121	Acid Soluble Mg (%)	0354	0.0100	0.0000				2		121.30	0
121	Acid Soluble Mg (%)	0423	< 0.005					2		121.32	5
148	Total S (%)	0354	0.0350	0.0500				1		148.99	0
148	Total S (%)	0422	0.0000	0.0000				1		148.99	4
149	S - HNO3 soluble (%)	0524	0.0173	0.0031				1		149.04	0
149	S - HNO3 soluble (%)	0423	< 0.05					1		149.04	5
151	Acid Soluble As (ppm)	0524	0.0007	0.0006				1		151.30	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
151	Acid Soluble As (ppm)	0605	< 6.2					1		151.30	5
165	Acid Soluble B (%)	0354	0.0100	0.0000				1		165.30	0
181	Acid Soluble Cd (ppm)	0524	0.0052	0.0000				1		181.30	0
181	Acid Soluble Cd (ppm)	0605	< 1.85					1		181.30	5
191	Acid Soluble Cr (ppm)	0524	0.3595	0.0023				1		191.30	0
191	Acid Soluble Cr (ppm)	0605	< 1.2					1		191.30	5
202	Acid Soluble Co (ppm)	0524	0.0559	0.0116				1		202.30	0
221	Acid Soluble Cu (%)	0354	< 0.01					0		221.30	5
241	Acid Soluble Fe (%)	0524	0.0007	0.0000				2		241.99	0
241	Acid Soluble Fe (%)	0354	0.1000	0.0600				2		241.30	0
251	Acid Soluble Pb (ppm)	0524	0.0605	0.0681				1		251.30	0
251	Acid Soluble Pb (ppm)	0605	< 5					1		251.30	5
261	Acid Soluble Mn (%)	0354	< 0.01					0		261.30	5
281	Acid Soluble Hg (ppm)	0524	0.0015	0.0002				1		281.99	0
281	Acid Soluble Hg (ppm)	0605	< 1.25					1		281.30	5
289	Acid Soluble Mo (ppm)	0524	0.0223	0.0153				1		289.30	0
291	Acid Soluble Ni (ppm)	0524	0.2475	0.0442				1		291.30	0
291	Acid Soluble Ni (ppm)	0605	< 2.4					1		291.30	5
301	Acid Soluble Se (ppm)	0524	0.0060	0.0052				1		301.30	0
301	Acid Soluble Se (ppm)	0605	< 1.65					1		301.30	5
311	Sodium (%)	0354	0.0350	0.0300				1		311.99	0
311	Sodium (%)	0423	< 0.005					1		311.33	5
321	Acid Soluble Zn (%)	0524	0.0001	0.0000				1		321.99	0
321	Acid Soluble Zn (%)	0354	< 0.01					1		321.30	5
461	NBPT (N-(n-Butyl) thiophosphoric triamide (%)	0626	0.0175	0.0010				1		461.99	0
471	DDC (Dicyandiamide) (%)	0626	0.7300	0.0200				2		471.99	0
471	DDC (Dicyandiamide) (%)	0444	0.8400	0.0200				2		471.00	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. Identical duplicates not included in calculation of Rob R-bar. 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.