



# Proposed New IA Based Metrics

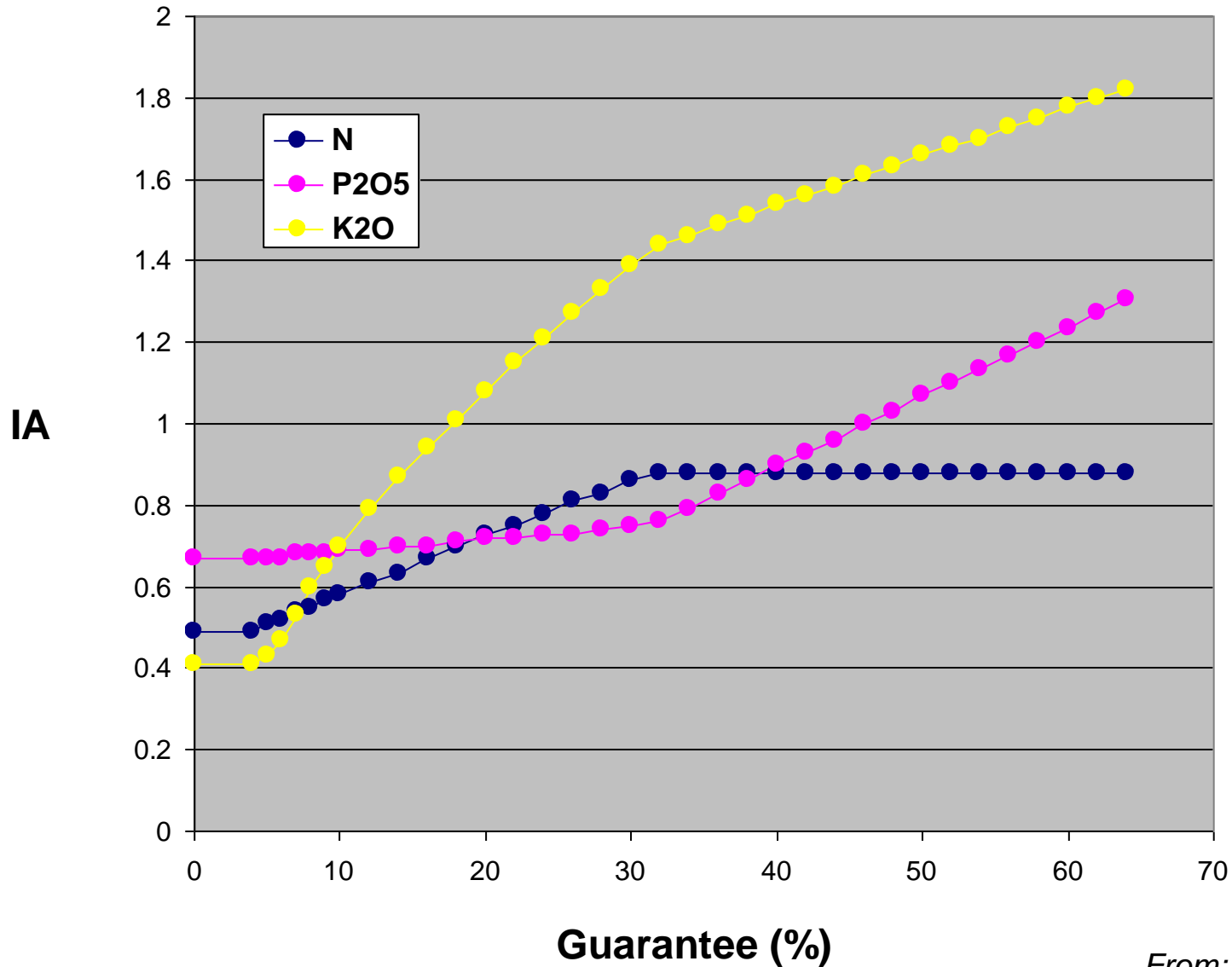
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## for Magruder Reports

## Investigational Allowance aka IA

- I'm told the IA represents a 95% Confidence Interval.
- NPK IA's follow a specified Table.
- Other guaranteed mineral nutrient IA's follow specified equations.

# NPK IA Table Values



## Micronutrient IA Calculation

$$\text{IA} = \text{Unit} + \% \text{ (of Guarantee)}$$

Analyte	Unit	%
Ca	0.2	5
Mg	0.2	5
S	0.2	5
B	0.003	15
Co	0.001	30
Cl	0.005	10
Cu	0.005	10
Fe	0.005	10
Mn	0.005	10
Mo	0.0001	30
Na	0.005	10
Zn	0.005	10

Maximum = 1 (% point)

## Investigational Allowance aka IA

- Given that the IA represents a 95% Confidence Interval.
- Then IA/2 would represent 68% of the data under a Normal curve or 1 standard deviation.
- Current Method Performance reports show an IA %RSD metric calculated as follows:

$$IA_{SD} = \frac{IA}{2}$$

$$IA \% RSD = \frac{IA_{SD}}{\text{Robust Mean}} \times 100$$

## New Dispersion Metric for Individual Methods and Analytes Performance Reports

$$\text{IA Factor} = \frac{\text{Robust \%RSD}}{\text{IA \%RSD}}$$

- Both %RSD's represent ~68% of data.
- This factor should be less than 1.
- Lower is more precise relative to IA.
- Values  $\leq 1$  will appear in **Green**.
- Values  $> 1$  will appear in **Red**.

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 170611

Grade 2-15-15 w/P03

### Statistical Summary

# Methods: 96

# Labs Reporting: 90

Issue Date : 07/31/2017

Method Code	Analyte & Method	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	LA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % R SD	Method %RSD /A Factor	Average Range (R-bar)	Horwitz %RSD
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	12	11	0.5455	0.0601	0.5436	0.4900	0.0640	0.0241	11.77%	0.26	0.0309	4.38%
001.99	Ammoniacal Nitrogen, Other (%)	17	16	0.5108	0.0898	0.5107	0.4900	0.1016	0.0317	19.88%	0.41	0.0161	4.43%
002.99	Nitrate Nitrogen, Other (%)	1		0.8050									
003.99	Water Insoluble Nitrogen, Other (%)	1		0.4700									
005.00	Urea Nitrogen, Urease (as N) (%)	5	5	1.679	0.1055	1.679	0.4900	0.1055	0.0590	6.29%	0.43	0.0416	3.70%
005.99	Urea Nitrogen, Other (%)	9	9	1.693	0.1936	1.693	0.4900	0.2195	0.0915	12.97%	0.90	0.0967	3.70%
007.00	Urea, Urease (as Urea) (%)	1		1.535									
007.99	Urea, Other (%)	2	2	1.515	0.0707								
010.11	Total Nitrogen, Modified Comprehensive (2%)	13	13	2.150	0.1309	2.144	0.4900	0.1340	0.0465	6.25%	0.55	0.0454	3.57%
010.12	Total Nitrogen, Salicylic (2%)	3	3	2.088	0.1005	2.088	0.4900	0.1005	0.0726	4.81%	0.41	0.0033	3.58%
010.17	Total Nitrogen, Comprehensive (2%)	1		1.720									
010.60	Total Nitrogen, Combustion (2%)	58	56	2.075	0.2639	2.082	0.4900	0.1762	0.0294	8.46%	0.72	0.0389	3.58%
010.99	Total Nitrogen, Other (2%)	8	8	2.123	0.0672	2.126	0.4900	0.0689	0.0304	3.24%	0.28	0.0635	3.57%
020.10	Total Phosphorus as P2O5, Gravimetric Quinolinium ... (%)	9	9	15.31	0.1820	15.30	0.7000	0.1614	0.0673	1.05%	0.46	0.1356	2.65%
020.20	Total Phosphorus as P2O5, Spectrophotometric Molyb... (%)	18	17	14.48	0.8522	14.53	0.7000	0.8285	0.2512	5.70%	2.37	0.0977	2.67%
020.40	Total Phosphorus as P2O5, Automated (%)	4	4	14.20	1.438	14.20	0.7000	1.438	0.8990	10.13%	4.11	0.6200	2.68%
020.50	Total Phosphorus as P2O5, ICP (%)	19	18	15.60	0.6574	15.61	0.7000	0.6334	0.1866	4.06%	1.81	0.2699	2.65%
020.99	Total Phosphorus as P2O5, Other (%)	10	9	14.84	0.8464	15.06	0.7000	0.3109	0.1296	2.01%	0.89	0.1256	2.66%
041.10	Direct Available Phosphorus as P2O5, Gravimetric Q... (15.2%)	4	4	12.24	0.2475	12.24	0.6976	0.2475	0.1547	2.00%	0.72	0.1474	2.74%
041.11	Direct Available Phosphorus as P2O5, Gravimetric Q... (15.2%)	5	5	12.50	0.2035	12.50	0.6976	0.2035	0.1138	1.63%	0.59	0.1060	2.74%
041.20	Direct Available Phosphorus as P2O5, Spectrophotom... (15.2%)	1		11.80									
041.21	Direct Available Phosphorus as P2O5, Spectrophotom... (15.2%)	4	4	14.66	1.417	14.66	0.6976	1.417	0.8855	9.66%	4.05	0.2150	2.67%
041.40	Direct Available Phosphorus as P2O5, Automated (15.2%)	2	2	13.71	1.566								
041.50	Direct Available Phosphorus as P2O5, ICP (15.2%)	8	8	15.04	0.2758	15.04	0.6976	0.3127	0.1382	2.08%	0.89	0.1963	2.66%
041.51	Direct Available Phosphorus as P2O5, ICP, Citrate ... (15.2%)	6	6	15.12	0.1692	15.12	0.6976	0.1919	0.0979	1.27%	0.55	0.1483	2.66%
041.60	Direct Available Phosphorus as P2O5, Citrate-EDTA ... (15.2%)	13	12	12.66	0.8388	12.48	0.6976	0.4152	0.1498	3.33%	1.20	0.0749	2.74%
041.99	Direct Available Phosphorus as P2O5, Other (15.2%)	7	7	12.85	0.7794	12.59	0.6976	0.1635	0.0772	1.30%	0.47	0.0629	2.73%
048.20	Water Soluble Phosphorus as P2O5, Spectrophotometr... (%)	2	2	13.38	1.177								
050.00	Soluble Potassium as K2O, STPB Oxalate (15%)	10	10	17.72	0.7038	17.79	0.9922	0.5708	0.2256	3.21%	1.14	0.1441	2.59%
050.30	Soluble Potassium as K2O, AA (Oxalate) (15%)	8	8	18.14	3.181	17.53	0.9922	1.979	0.8744	11.29%	3.98	0.2038	2.60%
050.31	Soluble Potassium as K2O, AA (Citrate) (15%)	1		13.34									

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	Method %RSD/IA Factor	Average Range (R-bar)	Horwitz %RSD
050.32	Soluble Potassium as K2O, AA (Citrate-EDTA) (15%)	1		17.17									
050.50	Soluble Potassium as K2O, ICP (Oxalate) (15%)	7	6	17.36	1.019	17.60	0.9922	0.5353	0.2732	3.04%	1.07	0.0700	2.60%
050.51	Soluble Potassium as K2O, ICP (Citrate) (15%)	5	5	17.55	0.4704	17.55	0.9922	0.4704	0.2629	2.68%	0.95	0.3540	2.60%
050.52	Soluble Potassium as K2O, ICP (Citrate-EDTA) (15%)	11	11	17.37	0.5825	17.38	0.9922	0.6471	0.2439	3.72%	1.31	0.2546	2.60%
050.60	Soluble Potassium as K2O, Flame Photometric (Oxala... (15%)	3	3	17.52	0.3368	17.52	0.9922	0.3368	0.2431	1.92%	0.68	0.0533	2.60%
050.61	Soluble Potassium as K2O, Flame Photometric (Citra... (15%)	2	2	17.94	0.1273								
050.62	Soluble Potassium as K2O, Flame Photometric (Citra... (15%)	6	6	17.50	0.7890	17.50	0.9922	0.3811	0.4496	5.03%	1.78	0.1130	2.60%
050.99	Soluble Potassium as K2O, Other (15%)	36	33	17.27	1.147	17.30	0.9922	1.139	0.2479	6.59%	2.31	0.888	2.60%
101.00	Acid Soluble Calcium, AA, inorganic 965.09 (%)	1		0.0015									
101.03	Acid Soluble Calcium, AA, 965.09, test portion 200... (%)	1		0.0019									
101.30	Acid Soluble Calcium, ICP, test portion inorganic ... (%)	1		0.0270									
101.99	Acid Soluble Calcium, Other (%)	1		0.0045									
121.00	Acid Soluble Magnesium, AA, inorganic 965.09 (%)	3	3	0.0292	0.0484	0.0292	0.2001	0.0484	0.0349	165.95%	0.48	0.0034	6.81%
121.03	Acid Soluble Magnesium, AA, 965.09, test portion 2...	1		0.0009									
121.30	Acid Soluble Magnesium, ICP, test portion inorgani... (	1		0.0110									
121.32	Acid Soluble Magnesium, ICP, test portion 2006.03A...	1		0.0007									
121.33	Acid Soluble Magnesium, ICP, test portion 2006.03A...	1		0.0010									
121.99	Acid Soluble Magnesium, Other (%)	2	2	0.0007	0.0002								
143.99	Elemental Sulfur, Other (%)	1		0.0025									
148.99	Total Sulfur, Other (%)	1		0.0285									
149.04	Sulfur - HNO3 soluble, ICP (%)	2	2	0.0019	0.0001								
151.00	Acid Soluble Arsenic , AA, test portion as in 2006... (p	1		2.165									
151.30	Acid Soluble Arsenic , ICP (ppm)	1		2.500									
151.33	Acid Soluble Arsenic , ICP, 2006.03 modified w/9:3... (	1		3.216									
151.99	Acid Soluble Arsenic , Other (ppm)	1		3.100									
165.30	Acid Soluble Boron , ICP, test portion in 982.01 (%)	3	3	0.0066	0.0098	0.0066	0.0038	0.0098	0.0071	148.42%	4.93	0.0021	8.51%
165.99	Acid Soluble Boron , Other (%)	1		0.0009									
181.30	Acid Soluble Cadmium , ICP (ppm)	3	3	0.2867	0.3043	0.2867		0.3043	0.2196	106.13%		0.0037	19.31%
181.33	Acid Soluble Cadmium , ICP, 2006.03 modified w/9:3..	1		0.0425									
181.99	Acid Soluble Cadmium , Other (ppm)	1		0.0100									
191.30	Acid Soluble Chromium , ICP (ppm)	3	3	12.35	16.64	12.35		16.64	12.01	134.71%		0.3000	10.96%
191.33	Acid Soluble Chromium , ICP, 2006.03 modified w/9:...	1		0.3945									
202.30	Acid Soluble Cobalt , ICP (ppm)	3	3	6.421	10.68	6.421	2.4454	10.68	7.706	166.30%	7.30	0.5702	12.09%
202.33	Acid Soluble Cobalt , ICP, 2006.03 modified w/9:3 ... (l	1		0.0095									
221.00	Acid Soluble Copper , AA, inorganic 965.09 (%)	1		0.0020									
221.30	Acid Soluble Copper , ICP, test portion inorganic ... (%)	1		0.0015									
221.99	Acid Soluble Copper , Other (%)	1		0.0002									
241.00	Acid Soluble Iron, AA, inorganic 965.09 (0.1%)	6	6	0.0045	0.0052	0.0045	0.0051	0.0059	0.0030	130.19%	2.16	0.0002	9.02%
241.03	Acid Soluble Iron, AA, 965.09, test portion 2006.0... (0.	1		0.0004									
241.20	Acid Soluble Iron , Colormetric (0.1%)	1		0.1300									
241.30	Acid Soluble Iron, ICP, test portion inorganic 965... (0.	8	6	0.0032	0.0037	0.0029	0.0051	0.0033	0.0017	114.96%	1.24	0.0001	9.66%
241.32	Acid Soluble Iron, ICP, test portion 2006.03A-C (0.1%	1		0.0006									



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	Method %RSD/IA Factor	Average Range (R-bar)	Horwitz %RSD
241.33	Acid Soluble Iron, ICP, test portion 2006.03A-C, w...	2	2	0.0011	0.0001								
241.99	Acid Soluble Iron, Other (0.1%)	5	5	0.0011	0.0008	0.0011	0.0051	0.0008	0.0005	75.72%	0.33	0.0001	11.15%
251.30	Acid Soluble Lead, ICP (ppm)	3	3	0.8052	0.9020	0.8052		0.9020	0.6509	112.01%		0.0114	16.53%
251.33	Acid Soluble Lead, ICP, 2006.03 modified w/9:3 HN...	1		0.0110									
251.99	Acid Soluble Lead, Other (ppm)	1		6.450									
261.30	Acid Soluble Manganese, ICP, test portion 972.02a (9...	1		0.0000									
281.30	Acid Soluble Mercury, ICP (ppm)	1		0.0030									
281.99	Acid Soluble Mercury, Other (ppm)	1		0.0200									
289.30	Acid Soluble Molybdenum, ICP (ppm)	3	3	1.450	1.782	1.450	1.3581	1.782	1.286	122.89%	2.48	0.0790	15.13%
289.33	Acid Soluble Molybdenum, ICP, 2006.03 modified w/...	1		0.4245									
291.30	Acid Soluble Nickel, ICP (ppm)	4	4	3.723	6.361	3.723		6.361	3.976	170.84%		0.2106	13.13%
291.33	Acid Soluble Nickel, ICP, 2006.03 modified w/9:3 ...	1		0.2800									
301.33	Acid Soluble Selenium, ICP, 2006.03 modified w/9:...	1		0.0425									
311.32	Sodium, ICP, 2006.03 test portion (%)	1		0.0915									
311.33	Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl test .	2	2	0.0828	0.0039								
311.99	Sodium, Other (%)	2	2	0.1313	0.0725								
321.00	Acid Soluble Zinc, AA, inorganic 965.09 (0.1%)	9	8	0.0029	0.0037	0.0027	0.0051	0.0037	0.0016	136.97%	1.40	0.0002	9.74%
321.03	Acid Soluble Zinc, AA, 965.09, test portion 2006....	1		0.0003									
321.30	Acid Soluble Zinc, ICP, test portion inorganic 96...	7	5	0.0017	0.0010	0.0017	0.0051	0.0010	0.0006	62.00%	0.40	0.0005	10.48%
321.32	Acid Soluble Zinc, ICP, test portion 2006.03A-C ...	1		0.0006									
321.33	Acid Soluble Zinc, ICP, test portion 2006.03A-C, ...	3	3	0.0006	0.0003	0.0006	0.0051	0.0003	0.0002	54.55%	0.12	0.0002	12.38%
321.99	Acid Soluble Zinc, Other (0.1%)	5	5	0.0005	0.0005	0.0005	0.0051	0.0005	0.0003	84.71%	0.18	0.0000	12.41%
325.00	Water Soluble Zinc, AA (%)	3	3	0.0004	0.0003	0.0004		0.0003	0.0002	82.84%		0.0000	13.07%

**Review of this parameter over time  
should highlight excessive Method variability**

# magruder fertilizer

## check sample program



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Analyte Proficiency From All Labs

Sample # 170611

Grade 2-15-15 w/P03

### Statistical Summary

# Analytes: 31

# Labs Reporting: 90

Issue Date : 07/31/2017

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	Analyte %RSD/IA Factor	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal Nitrogen (%)	29	28	0.5328	0.0885	0.5315	0.4900	0.0907	0.0214	17.06%	0.37	0.0246	4.40%
002	Nitrate Nitrogen (%)	1		0.8050									
003	Water Insoluble Nitrogen (%)	1		0.4700									
005	Urea Nitrogen (%)	14	13	1.705	0.1565	1.701	0.4900	0.1687	0.0585	9.92%	0.69	0.0521	3.69%
007	Urea (%)	3	3	1.522	0.0513	1.522	0.4900	0.0513	0.0370	3.37%	0.21	0.0700	3.75%
010	Total Nitrogen (2%)	83	80	2.087	0.2328	2.094	0.4900	0.1521	0.0213	7.26%	0.62	0.0336	3.58%
020	Total Phosphorus as P2O5 (%)	60	57	15.06	0.9357	15.15	0.7000	0.6201	0.1027	4.09%	1.77	0.1897	2.66%
041	Direct Available Phosphorus as P2O5 (15.2%)	50	49	13.51	1.345	13.51	0.6976	1.526	0.2724	11.29%	4.37	0.1224	2.70%
048	Water Soluble Phosphorus as P2O5 (%)	2	2	13.38	1.177								
050	Soluble Potassium as K2O (15%)	90	87	17.46	1.351	17.49	0.9922	0.8170	0.1095	4.67%	1.65	0.1894	2.60%
101	Acid Soluble Calcium (%)								0.0077	140.47%	0.12	0.0015	8.16%
121	Acid Soluble Magnesium (%)								0.0003	71.05%	0.01	0.0002	11.21%
143	Elemental Sulfur (%)												
148	Total Sulfur (%)												
149	Sulfur - HNO3 soluble (%)												
151	Acid Soluble Arsenic (ppm)								0.3113	18.14%		0.4225	13.74%
165	Acid Soluble Boron (%)								0.0053	164.12%	4.52	0.0016	8.83%
181	Acid Soluble Cadmium (ppm)	5	5	0.1825	0.2584	0.1825		0.2584	0.1445	141.58%		0.0024	20.66%
191	Acid Soluble Chromium (ppm)	4	4	9.361	14.84	9.361		14.84	9.276	158.54%		0.2353	11.42%
202	Acid Soluble Cobalt (ppm)	4	4	4.818	9.289	4.818	2.4454	9.289	5.806	192.80%	7.60	0.4279	12.63%
221	Acid Soluble Copper (%)	3	3	0.0012	0.0010	0.0012	0.0051	0.0010	0.0007	78.66%	0.37	0.0004	10.98%
241	Acid Soluble Iron (0.1%)	24	22	0.0026	0.0035	0.0014	0.0051	0.0010	0.0003	70.86%	0.39	0.0002	10.75%
251	Acid Soluble Lead (ppm)	5	5	1.775	2.712	1.775		2.712	1.516	152.75%		0.1872	14.67%
261	Acid Soluble Manganese (%)	1		0.0000									
281	Acid Soluble Mercury (ppm)	2	2	0.0115	0.0120								
289	Acid Soluble Molybdenum (ppm)	4	4	1.194	1.543	1.194	1.3581	1.543	0.9642	129.24%	2.27	0.0640	15.58%
291	Acid Soluble Nickel (ppm)	5	5	3.035	5.720	3.035		5.720	3.198	188.48%		0.1693	13.54%
301	Acid Soluble Selenium (ppm)	1		0.0425									
311	Sodium (%)	5	5	0.1039	0.0442	0.1039	0.0154	0.0442	0.0247	42.54%	5.74	0.0100	5.62%
321	Acid Soluble Zinc (0.1%)	26	23	0.0016	0.0024	0.0010	0.0051	0.0009	0.0002	87.57%	0.34	0.0002	11.32%
325	Water Soluble Zinc (%)	3	3	0.0004	0.0003	0.0004		0.0003	0.0002	82.84%		0.0000	13.07%

In addition to Method variability, over time this Factor can highlight discrepancy between Methods.

# New Location Metric for Method Report Cards

## Method IA Status

- If your result is less than, Assigned Value – IA
- The word “**Low**” will appear in **Red**.
  
- If your result is greater than, Assigned Value + IA
- The word “**High**” will appear in **Orange**.
  
- The “Goldilocks” result will appear as “**OK**” in **Green**.

Replaces Threshold %RSD – a less useful metric!

## A NEW Reality!

- It is important to remember that, in this case “Guarantee” no longer refers to the Label value.
- “Guarantee” now refers to our best estimate of the true value – The Assigned Value.
- IA is now seen as a fixed and predefined measure of dispersion about a true value.
- IA is NOT dependent on Participant dispersion as is a Z Score!

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Proficiency For 5 Methods

Issue Date : 07/31/2017

Method Code	Analyte Name and Method (Units)	Lab	Data	Method Values				Magruder Z Score	Method IA	
		Value	range	Rob Mean	Rob SD	R-bar	# Tests		Status	Flag
001.99	Ammoniacal Nitrogen, Other (%)	0.3700	0.0800	0.5107	0.1016	0.0161	16	-1.39	OK	0
005.99	Urea Nitrogen, Other (%)	2.005	0.0300	1.693	0.2195	0.0967	9	1.31	OK	0
041.99	Direct Available Phosphorus as P2O5, Other (15.2%)	14.60	0.0800	12.59	0.1635	0.0629	7	11.09	High	0
050.99	Soluble Potassium as K2O, Other (15%)	15.05	1.190	17.30	1.139	0.1888	33	-1.98	Low	1
321.00	Acid Soluble Zinc, AA, inorganic 965.09 (0.1%)	0.0026	0.0003	0.0027	0.0037	0.0002	8	-0.04	OK	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/s submitted. Robust statistics not used if  $<6$  labs used in calculations, in this case the Z Scores are included for information only (Grey). 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.

**Method IA Status compares the Location of your result with the Rob Mean Relative to this range: Rob Mean\*  $\pm$  IA.**

\*The Rob Mean is the Assigned Value

# magruder fertilizer

check sample program

Sample # 170611: Grade 2-15-15 w/PO3  
Method Report Card for Lab Code XXXXXXXXXX

STRIVING FOR EXCELLENCE IN ANALYSIS

Issue Date : 07/31/2017

## Proficiency For 14 Methods

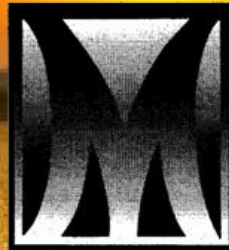
Method Code	Analyte Name and Method (Units)	Lab	Data	Method Values				Magruder	Method IA	Flag
		Value	range	Rob Mean	Rob SD	R-bar	# Tests	Z Score	Status	
001.10	Ammoniacal Nitrogen, Magnesium Oxide Method (%)	0.5950	0.0300	0.5436	0.0640	0.0309	11	0.80	OK	0
001.99	Ammoniacal Nitrogen, Other (%)	0.5600	0.0200	0.5107	0.1016	0.0161	16	0.49	OK	0
010.11	Total Nitrogen, Modified Comprehensive (2%)	2.150	0.1000	2.144	0.1340	0.0454	13	0.04	OK	0
020.20	Total Phosphorus as P2O5, Spectrophotometric ... (%)	15.25	0.1000	14.53	0.8285	0.0977	17	0.87	High	0
020.99	Total Phosphorus as P2O5, Other (%)	15.28	0.2000	15.08	0.3109	0.1256	9	0.43	OK	0
041.21	Direct Available Phosphorus as P2O5, Spectrop... (15.2%)	12.55	0.1000	14.66	1.417	0.2150	4	-1.49	Low	0
041.60	Direct Available Phosphorus as P2O5, Citrate-... (15.2%)	12.58	0.0000	12.48	0.4152	0.0749	12	0.05	OK	0
041.99	Direct Available Phosphorus as P2O5, Other (15.2%)	12.55	0.1000	12.59	0.1635	0.0629	7	-0.24	OK	0
048.20	Water Soluble Phosphorus as P2O5, Spectrophot... (%)	12.55	0.1000				2			0
050.61	Soluble Potassium as K2O, Flame Photometric (... (15%)	17.85	0.1000				2			0
050.99	Soluble Potassium as K2O, Other (15%)	17.75	0.1000	17.30	1.139	0.1888	33	0.39	OK	0
241.00	Acid Soluble Iron, AA, inorganic 965.09 (0.1%)	0.0010	0.0001	0.0045	0.0059	0.0002	6	-0.54	OK	0
321.00	Acid Soluble Zinc, AA, inorganic 965.09 (0.1%)	0.0003	0.0001	0.0027	0.0037	0.0002	8	-0.61	OK	0
325.00	Water Soluble Zinc, AA (%)	0.0002	0.0000	0.0004	0.0003	0.0000	3	-0.58	No IA	0

Interpreting Z Scores: Red indicates a normally distributed Z value  $\geq 3$  or  $\leq -3$  (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z  $< 2$  and  $\geq -2$  (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/s submitted. Robust statistics not used if  $\leq 6$  labs used in calculations, in this case the Z Scores are included for information only (Grey). 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.

Currently not all Micros have IA's

## Summary Proposal

- Review and discuss NEW Metrics opportunities in committee.
- Incorporate the Dispersion Metric IA Factor.
- Incorporate the Location Metric IA Status.
- Minimize changes in data structure to preserve continuity from past sample data.



**MAGRUDER**

**Questions?**